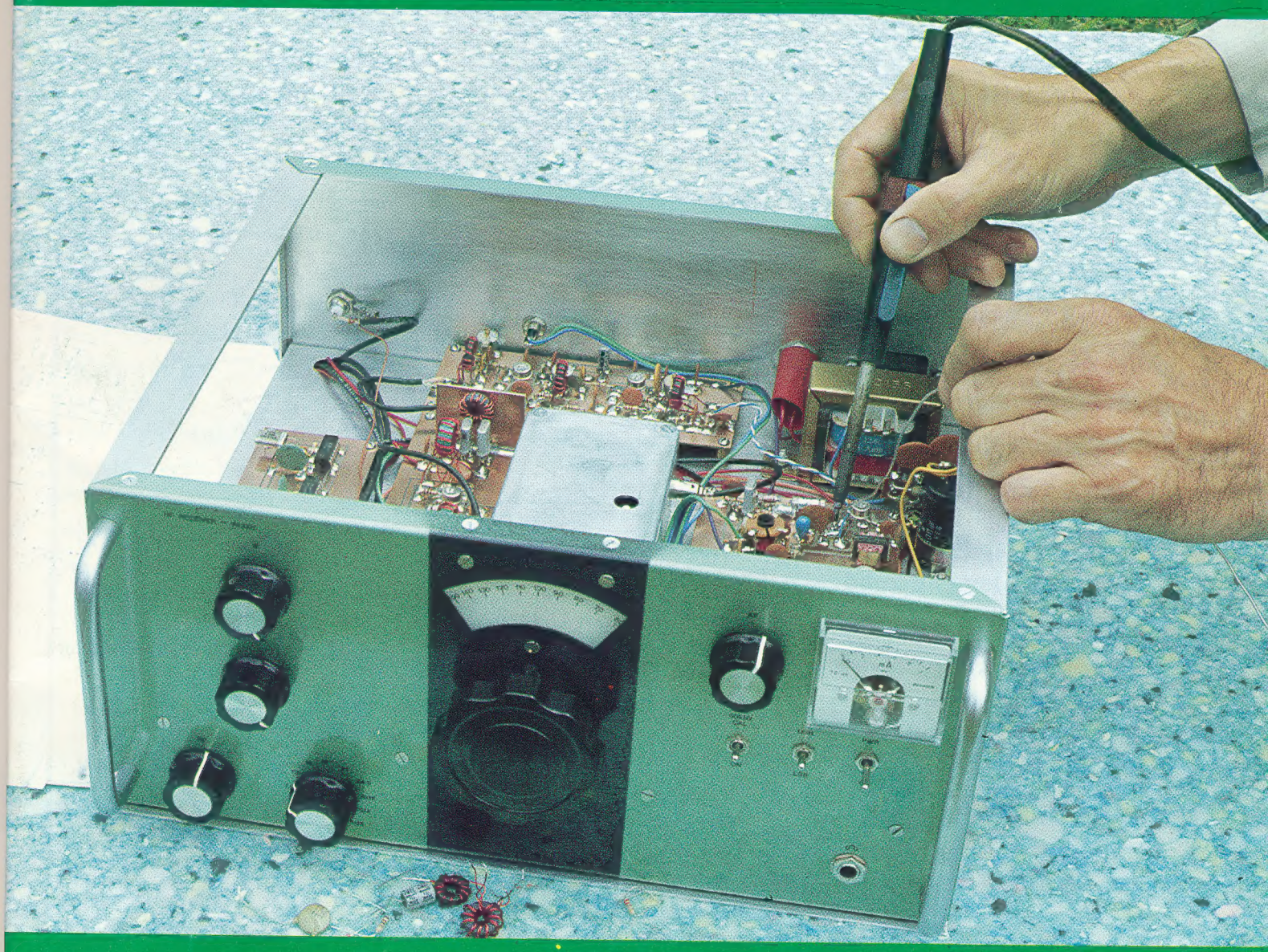
Amateur Radio

VOL. 51, No. 2 FEBRUARY 1983
Registered by Australia Post — Publication No. VBH 0569

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



New RTTY column

Square One Receiver — Part 2

Canoe Marathon

Two Tone Oscillator

A Different Dipole

Review of TS430S Transceiver

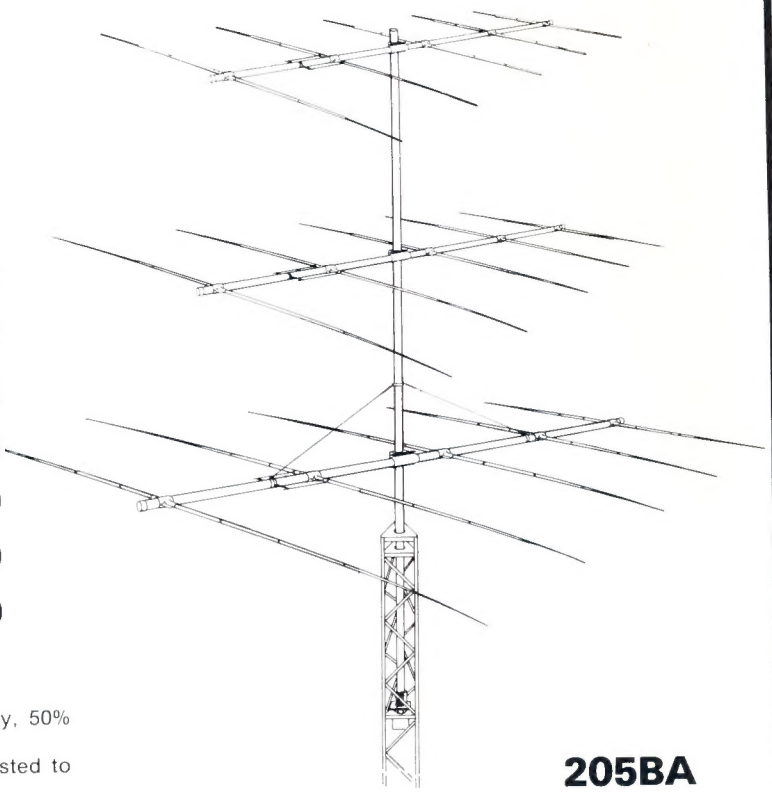
hy-gain® ANTENNAS AT USA PRICES

A GENUINE OFFER FROM HYGAIN AND AUDIO TELEX COMMUNICATIONS

Most HAMS would prefer Hygain to any other brand antenna, until now price has placed them out of reach of most people. Now Audio Telex Communications are joining with Hygain in making this direct offer on the entire range of Hygain antennas.

Here are some examples:

TH3JR Triband	**$267.00**
TH3MK3 Thunderbird	**$364.00**
18AVT Trap Vertical	**$149.00**
204BA Long John 20 metre	**$382.00**
V2 Colinear Gain Vertical	**$ 65.00**
153BA 3 Element 15 metre	**$124.00**
DB10-15A Duo Beam	**$230.00**
Hyquad 3 Element Quad	**$447.00**
TH5DXX Triband Supreme	**$528.00**
TH7DXX Super Triband	**$643.00**



205BA

- Prices include Sales Tax.
- Delivery on some models 8-10 weeks approximately, 50% deposit required with order.
- Prices are equivalent to published USA prices, adjusted to Australian dollars, plus Australian Sales Tax.

AUDIO TELEX COMMUNICATIONS PTY. LTD.

SYDNEY
P.O. Box 421,
1 Little Street,
PARRAMATTA, 2150
Phone: 633 4344

MELBOURNE
P.O. Box 468,
7 Essex Road,
MT. WAVERLEY, 3149
Phone: 277 5311

BRISBANE
P.O. Box 871,
42 Commercial Road,
FORTITUDE VALLEY, 4006
Phone: 52 1312

Ring for prices or free catalogue.

W01101

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910.

ISSN 0002 - 6859.

VOL. 51, No. 2
FEBRUARY 1983

Registered Office:
3/105 Hawthorn Road,
Caulfield North 3161.
Tel. (03) 528 5962

amateur radio

. . . in this issue . . .

A Call to all Amateurs 35
A Different Dipole 6
A Square One Receiver 14
Amateur Achievement 39
Emergency and Distress Calls 36
For You Antenna Buffs 23
HAAT is Important 23
Heard Island Expedition 42
Improving the Duty Cycle of the FM 321 & 320 25
Mayoral Letter 43
Radio Amateur Old Timers' Club QSO Parties 20
Red Cross Murray Canoe Marathon 17
Special Awards 43
The Ravin 31
Two-Tone Oscillator 29
WCY '83 — *Public Relations and Comments* 37

. . . departments . . .

A word from your Editor 11
ALARA 52
AMSAT Australia 48
AR Showcase — *Radio Globe, Programmable Attenuator, HH Tcvr, TR7 PCB* 34
Advertisers Index 64
Awards — *VK Award changes, UK Prefixes, Blue Lake, Lighthouse & 2 African awards* 40
Book Review — *ARRL Antenna Handbook* 52
Commercial Chatter — *ICOM in Aust., free Fluke Literature, $5 million contract* 31
Contests — *corrections RD, results 1982 Novice, rules Commonwealth (BERU)* 30
Education Notes 35
Equipment Review — *Kenwood TS-430S* 22
Five-Eighth Wave 59
Hamads 63
Here's RTTY 38
How's DX 26
International News 28
Intruder Watch 47
Ionospheric Predictions .. 61
Letters to the Editor 60
Magazine Review 47
Main QSP 12
National EMC Advisory Service — *comments on RSTV, CATV & DBS* 50
Novice Notes — ATUs — Trick or Treat 18
Obituaries — *VK2PX, VK3VZZ* 62
Pounding Brass 39
QSP ..... 25, 41, 46 & 56
Silent Keys — *VK2PX, VK6VX, VK2YHD, VK7NR, VK5NSO, VK3VZZ, VK3IS* 62
Spotlight on SWLing 53
Technical Correspondence — *Update of G5RV* 20
VHF UHF — *an expanding world* 44
VK2 Mini Bulletin 54
VK3 WIA News 58
VK4 WIA Notes 59
WIA News 8

EDITOR:
BRUCE BATHOLS* VK3UV

TECHNICAL EDITORS:
BILL RICE* VK3ABP
EVAN JARMAN* VK3ANI
RON COOK* VK3AFW
GIL SONES* VK3AUI

CONTRIBUTING EDITORS:
BOB ARNOLD VK3ZBB
ROY HARTKOPF* VK3AOH
RON FISHER* VK3OM
ERIC JAMIESON VK5LP
LEN POYNTER* VK3BYE
MIKE BAZLEY VK6HD
KEN McLACHLAN VK3AH
REG DWYER VK1BR
ROBIN HARWOOD VK7RH

DRAFTING:
PETER KIMBER GEORGE BROOKS
LIZZ KLINE

ADVERTISING MANAGER:
JOHN J A HILL VK3DKK

BUSINESS MANAGER:
REG MACEY
***Member of Publications Committee**

Enquiries and material to:
The Editor
PO Box 300, Caulfield South Vic. 3162

Copy is required the **first of each month.** Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Material should be sent direct to **PO Box 300, Caulfield South Vic., 3162,** by the **25th of the second month preceding publication. Phone: (03) 528 5962.** Hamads should be sent direct to the same address by the **1st of the month preceding publication.**

Trade Practices Act: It is impossible for us to ensure that advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly.

Victorian Consumer Affairs Act: All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business or residential address of the box-holder or seller of the goods.

Production: BETKEN PRODUCTIONS
5 Masefield Avenue, Mooroolbark, 3138

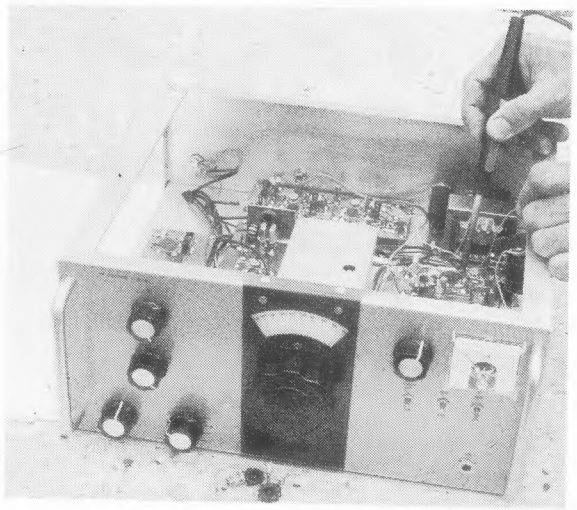
Laser Scanned Colour Separations by: QUADRICOLOR INDUSTRIES PTY LTD, Graphic Division
22-24 Glenvale Crescent, Mulgrave, 3170.
Tel.: (03) 560 2222

Typesetting by: QUADRICOLOR INDUSTRIES PTY LTD,
22-24 Glenvale Crescent, Mulgrave, 3170
Tel.: (03) 560 2222

Printers: WAVERLEY OFFSET PUBLISHING GROUP
Geddes Street, Mulgrave, 3170
Tel.: (03) 560 5111

Photographic film and processing material courtesy AGFA-GEVAERT LTD AUSTRALIA

on the cover



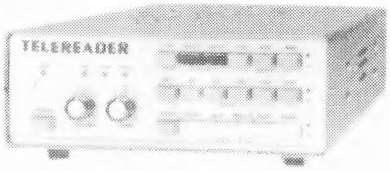
The Square One Receiver designed and built by Drew Diamond VK3XU.

EMTRONICS

649 George St., Sydney, NSW. 2000. Phone: 211-0531.

"SWL-DREAM MACHINE"

NEW CWR-670E TELEREADER



ONLY $447

See What You've Been Missing!

Stay in touch with world events, monitor weather, press, ship traffic, and radio amateurs. Connect to your receiver and display shortwave radio teleprinter and Morse code transmissions with the new receive-only
CWR-670E Telereader or CWR-610 Code Master

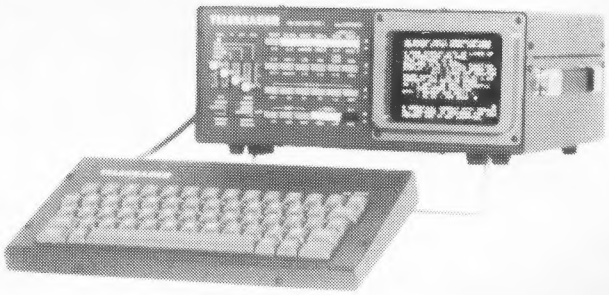
NEW ECONOMY DECODER-CONVERTER

Only $247

NEW

RTTY-CW-ASCII TERMINAL

ONLY $1090



CWR-685 TELEREADER

Yes, now you can take it with you! The new **CWR-685E Telereader** is the smallest RTTY and CW terminal available, complete with CRT display screen. Stay active with your RTTY and CW friends even while travelling. Some of the outstanding features of the CWR-685E are:

- **Send and receive ASCII, Baudot, and Morse code**
- **RTTY and Morse demodulators are built-in**
- **RTTY speeds of 45, 50, 57, 74, 110, and 300 baud**
- **High or Low RTTY tones**
- **Send and receive CW at 3 to 40 wpm**
- **Built-in 5 inch green CRT display**
- **Four page video screen display**
- **Six programmable HERE IS messages**
- **Pretype up to 15 lines of text**
- **External keyboard included**
- **Runs on + 12 VDC at 1.7 Amperes.**
- **Small size (12.75 x 5" x 11.5")**

TELEREADER EXPORT VERSION

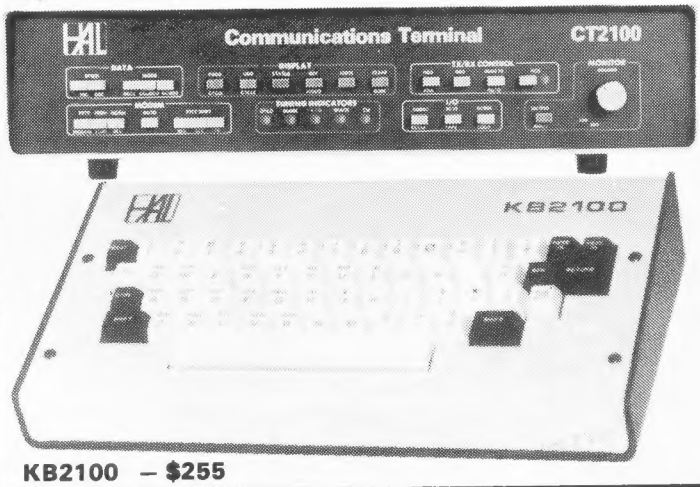
All above models are export versions and are available only from Emtronics. Japanese versions are useless in Australia or other countries.

As exclusive agents for all Telereader products we take no responsibility for service and/or spare parts for Japanese domestic models.

NEW the best from the USA

ONLY $1135

HAL CT2100 COMMUNICATIONS TERMINAL



KB2100 — $255

Compare feature for feature; you'll find that the CT2100 offers the most performance and flexibility for your dollar.

- **Send or receive ASCII, Baudot, or Morse code**
- **RTTY and Morse demodulators are built-in**
- **RTTY apeeds of 45, 50, 74, 100, 110, 300, 600, and 1200 baud — ASCII or Baudot**
- **FOUR RTTY Modems: "high tones", "low tones", "103 Modem tones", and "202 Modem tones"**
- **Three shifts for high and low tones (170, 425, and 850 Hz)**
- **Crystal-synthesized transmit tones**
- **Send and receive Morse code at 1 to 100 wpm**
- **Characters displayed on 24 line screen**
- **Choose either 36 or 72 characters per line**
- **2 pages of 72 character lines or 4 pages of 36 character lines**
- **Split-screen for pre-typing transmit text.**
- **Audio, current loop, or RS232 data 1/0**
- **Printers available for hard-copy of all 3 codes**
- **On-screen RTTY tuning bar plus LED indicators**
- **ALL ASCII control characters; half or full duplex**
- **Brag-tape storage of 8-256 character messages in MSG2100 EPROM option**
- **Two programmable HERE IS messages**

NOVICE COURSE

* THEORY BOOK

covers entire theory for exams

simple-to-follow text
copious diagrams

includes questions on each chapter

$7.50 incl. postage

* MORSE CODE TAPES

5 word/min. Novice Tape

8/10/15 Word/min.

10 WPM exams

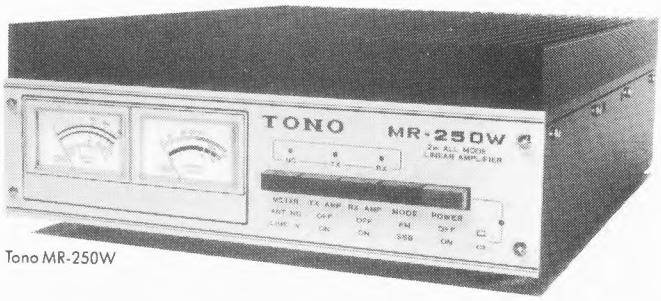
15 WPM practice

all tapes $5.00

Available from: G Scott.11 Balmoral Cres.
Surrey Hills 3127 Vic.
Or: A.Brucesmith. 110 Rosemead Rd.
Hornsby. NSW 2077.

NOTICE
All correspondence to Amateur Radio magazine and the Federal Office of the Wireless Institute of Australia should now be addressed to Post Office Box 300 Caulfield South, Victoria, 3162.

BOOST YOUR SIGNALS WITH TONO!



Tono MR-250W

With Tono linear amps you can boost those weak signals with this great range of tried and proven Tono Amps.
With all-mode operation for versatility, they all share common supply voltage.

Models available are:

- 2M100W Tono 2M Linear Amp., 10-15W in 90W out.
- 2M50W Tono 2M Linear Amp., 3W in 30-45W out.
- 2M70W Tono 2M Linear Amp., 10W in 65W out.
- 4M50W Tono 70cm Linear Amp., 10W in 40W out.
- MR150W Tono 2M Linear Amp., 10W in 140W out.
- MR250W Tono 2M Linear Amp., 10W in 240W out.
- UC70 Tono 70cm Linear Amp., 10W in 60W out.

For the very best in communication and the latest in RTTY equipment, Tono is a brand that can't be beaten.

You can computerise your shack with the Tono Theta-9000E RTTY computer. It's ideal for the amateur or the professional, with an amazing array of features and capabilities.

Models available are:

- 9000E Tono RTTY Computer Incl. Word Processor
- CRT1200G Tono Video Monitor 12"

See the complete range of Tono equipment at Vicom's showroom in Melbourne. Alternatively, most reputable dealers stock Vicom products.

VICOM

People to People.

MELBOURNE:
Vicom International Pty. Ltd.,
57 City Road, South Melbourne, Victoria (03) 62 6931
SYDNEY:
Emtronics, 649 George St., Sydney (02) 211 0531
WELLINGTON, N.Z.:
Malvicom, 18 Raroa Road, Lower Hutt (4) 697 625

Dealer enquiries invited.

INTRODUCING:

"THE GRAY-LINE RADIO GLOBE"
by Columbus

THE COMMUNICATIONS ACCESSORY EVERY OPERATOR SHOULD HAVE

Some of the features are:

AMATEUR RADIO PREFIXES
WITH STATE PREFIXES.
GREAT CIRCLES.
W.A.Z. ZONES.
I.T.U. REGIONS.
10m BEACON LOCATIONS AND CALLSIGNS.
THE MOST IMPORTANT STANDARD FREQUENCY AND TIME SIGNAL STATIONS.
SHORTWAVE BROADCAST TRANSMITTERS.
CONTINENTAL BORDERLINES.
INTERNATIONAL DATELINE.
DAYLIGHT/DARKNESS ZONES.
TWILIGHT ZONES.
SUNRISE/SUNSET TIMES.
POSITION OF SUN DEPENDING ON DAY TIME AND SEASON.
SUBSOLAR POINT PROJECTION.
DISTANCE MARKINGS ON GREAT CIRCLES.

"THE GRAY-LINE RADIO GLOBE"
(A WEST-GERMAN QUALITY PRODUCT)

Price: $169.00 ex warehouse Perth.

For further information contact:

RIALTO INTERNATIONAL

26 Karoonda Rd. Booragoon, W.A. 6154
Tel. (09) 364 4768

Distributors for Columbus
Terrestrial, Celestial
and Lunar Globes

ILP TOROIDALS — UNBEATABLE VALUE

ILP toroidal transformers meet modern day requirements for a smaller size, low magnetic interference field transformer. Featuring a nearly ideal physical construction, one can expect excellent performance. Small size and weight (approximately 50% of conventional transformers), extremely low noise and low magnetic interference field make the toroidal transformer ideal for compact power supplies.

TYPE	SERIES No.	SECONDARY RMS Volts	Current
30 VA 70x30mm 0.45Kg Regulation 18%	1X010	6+6	2.50
	1X011	9+9	1.66
	1X012	12+12	1.25
	1X013	15+15	1.00
	1X014	18+18	0.83
	1X015	22+22	0.68
	1X016	25+25	0.60
	1X017	30+30	0.50
50VA 80x35mm 0.9 Kg Regulation 13%	2X010	6+6	4.16
	2X0011	9+9	2.77
	2X012	12+12	2.08
	2X013	15+15	1.66
	2X014	18+18	1.38
	2X015	22+22	1.13
	2X016	25+25	1.00
	2X017	30+30	0.83
	2X028	110	0.45
	2X029	220	0.22
	2X030	240	0.20
80 VA 90x30mm 1 kg Regulation 12%	3X010	6+6	6.64
	3X011	9+9	4.44
	3X012	12+12	3.33
	3X013	15+15	2.66
	3X014	18+18	2.22
	3X015	22+22	1.81
	3X016	25+25	1.60
	3X017	30+30	1.33
	3X028	110	0.72
	3X029	220	0.36
	3X030	240	0.33
120 VA 90x40mm 1.2 Kg Regulation 11%	4X010	6+6	10.00
	4X011	9+9	6.66
	4X012	12+12	5.00
	4X013	15+15	4.00
	4X014	18+18	3.33
	4X015	22+22	2.72
	4X016	25+25	2.40
	4X017	30+30	2.00
	4X018	35+35	1.71
	4X028	110	1.09
	4X029	220	0.54
	4X030	240	0.50
160 VA 110x40mm 1.8 Kg Regulation 8%	5X011	9+9	8.89
	5X012	12+12	6.66
	5X013	15+15	5.33
	5X014	18+18	4.44
	5X015	22+22	3.63
	5X016	25+25	3.20
	5X017	30+30	2.66
	5X018	35+35	2.28
	5X026	40+40	2.00
	5X028	110	1.45
	5X029	220	0.72
	5X030	240	0.66
225 VA 110x45mm 2.2 Kg Regulation 7%	6X012	12+12	9.38
	6X013	15+15	7.50
	6X014	18+18	6.25
	6X015	22+22	5.11
	6X016	25+25	4.50
	6X017	30+30	3.75
	6X018	35+35	3.21
	6X026	40+40	2.81
	6X025	45+45	2.50
	6X028	110	2.04
	6X029	220	1.02
	6X030	240	0.93
300 VA 110x50mm 2.6 Kg Regulation 6%	7X014	18+18	8.33
	7X015	22+22	6.82
	7X016	25+25	6.00
	7X017	30+30	5.00
	7X018	35+35	4.28
	7X026	40+40	3.75
	7X025	45+45	3.33
	7X033	50+50	3.00
	7X028	110	2.72
	7X029	220	1.36
	7X030	240	1.25
500 VA 140x60mm 4.0 Kg Regulation 4%	8X017	30+30	8.33
	8X018	35+35	7.14
	8X026	40+40	6.25
	8X025	45+45	5.55
	8X033	50+50	5.00
	8X042	55+55	4.54
	8X028	110	4.54
	8X029	220	2.27
	8X030	240	2.08
625 VA 140x75mm 5.0 Kg Regulation 4%	9X017	30+30	10.41
	9X018	35+35	8.92
	9X026	40+40	7.81
	9X025	45+45	6.94
	9X033	50+50	6.25
	9X042	55+55	5.68
	9X028	110	5.68
	9X029	220	2.84
	9X030	240	2.60

IMPORTANT. Regulator references · All voltages quoted are FULL LOAD. Please add regulation figure to secondary voltage to obtain off load voltage
For 240 V primary substitute 2 in place of X in series numbering when ordering.

Rating	List	Rating	List
30 VA	$21.20	225 VA	$48.20
50 VA	26.60	300 VA	55.90
80 VA	29.20	500 VA	77.30
120 VA	33.00	625 VA	94.00
160 VA	40.00 (+S.T. where app.)		

To order or for further information please contact:

ELECTROMARK Pty Ltd

40 Barry Avenue,
Mortdale N.S.W. 2223
Telephone (02) 533 4896

BANKCARD ACCEPTED

KNOXTRONICS
ELECTRONIC SERVICES

SERVICE SPECIALISTS for all types of RADIO EQUIPMENT — TELEVISION RECEIVERS — STEREO and HI-FI and VIDEO RECORDERS.
Sales and Service of CB Radio and Accessories, 27 MHz and UHF.

EASTERN VIDEO CENTRE

VIDEO LIBRARY SPECIALISTS, featuring latest releases from all major distributors. Video films to suit all tastes and requirements.

LIBRARY MEMBERSHIP ONLY $150 PER YEAR, giving you unlimited exchange (one Video Cassette at a time). All titles in VHS and BETA formats.

Also **Casual Video Film Rental Service.**
BLANK VIDEO TAPES at competitive prices
VIDEO RECORDER SALES and **RENTAL**
Special return mail service for country clients

8 DARRYL STREET, SCORESBY, 3179
PHONE (03) 763 8425
(SCORESBY SHOPPING VILLAGE)

W0806

WIDEST OPTIONS AVAILABLE

Everything you ever wanted in Antennas and Antenna Accessories are Now Available including:

"Antenna Specialists"
and
"Avanti"

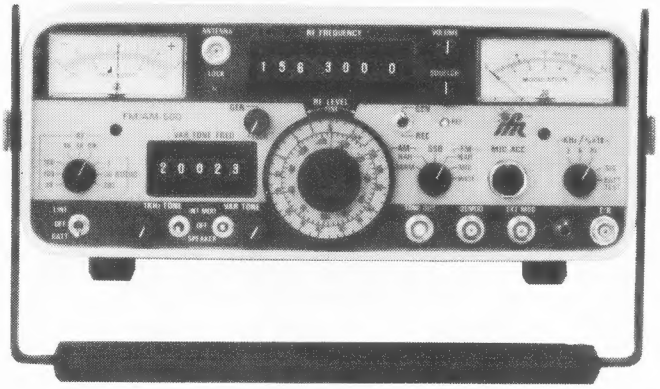
Our range optimises your range.
Call us Now:

R. F. Industries

Melbourne (03) 570 1698
Sydney (02) 519 5188
Brisbane (07) 52 7600

THE PROFESSIONALS

THE TEST OF A PROFESSIONAL



The IFR FM/AM-500 is a classic example of IFR design engineering. It incorporates the following features.

STANDARD • FM Signal Generator • AM Signal Generator • Sensitive 2uV receiver for AM, FM and SSB • 1kHz audio generator • Frequency error meter • Automatically protected generator output to 150 watts (no bothersome fuses to replace) • 0.5 PPM TCXO • Microphone/accessory input • Audio demodulator output • Low price

OPTIONAL • 0.2 PPM TCXO • 0.03 PPM oven oscillator plus high resolution frequency error meter (simulcast paging) • 10Hz to 9999.9Hz variable audio generator plus audio frequency error meter • Internal rechargeable battery (2 hour battery operation) • High output amplifier • Microphone • Telescoping Antenna

It weighs a remarkably low 7.2kg – 9.9kg with batteries and accessories, and is contained in a compact enclosure measuring only 29.2cm W x 12.5cm H x 36.2cm D. And it comes with Vicom's full two year warranty.

Inspect the IFR FM/AM-500 at your nearest Vicom office or agent (listed below).

Vicom. The Professionals. The official representatives of the most significant overseas companies in the Electronic Communication Industry. And backed up by Vicom's professional expertise and unbeatable after sales service.

VICOM

People to People.

VICOM INTERNATIONAL PTY. LTD.,
57 City Road, South Melbourne, Victoria (03) 62 6931.
Eagle House, 118 Alfred Street, Milsons Point, N.S.W. (02) 436 2766.
Malvicom, 18 Raroa Road, Lower Hutt, Wellington, New Zealand (4) 697625.
Wormald Communications, 72-80 Belgravia St., Belmont. W.A. (09) 277 8944.
Elite Electronics, 8 Cox Road, Windsor, Q'ld. (07) 579 400.
International Communications, 8 Nile Street, Port Adelaide. S.A. (08) 473 688.
Navcom Electronics, 6 Manton St., Darwin. N.T. (089) 817414.

A DIFFERENT DIPOLE

The coaxial dipole presented here is a variation of an HF design which has been described in a number of publications.

Ray Wells VK2BVO

Claims for the antenna include improved bandwidth, Balun not required, less affected by proximity to trees etc, electrically quieter because the entire antenna is at ground potential and a direct match to 50 ohm coaxial feedline.

It is not the writer's intention to prove or disprove any of the above claims but merely to present his ideas on how to construct VHF/UHF versions. As can be seen, from the accompanying diagrams, two construction methods have been employed. One is a variation on the other. In method A, see fig 1, the entire antenna is made from a length of coaxial cable which, after construction, is suitably enclosed and weatherproofed. PVC conduit makes a very suitable enclosure.

Take note that the velocity factor of the coax used will affect the length of section "B". If there is any doubt as to the velocity factor of your piece of coax then DO NOT USE IT. Length "B" is an important dimension. For method B, see fig 2, the braid of the coaxial cable is removed and replaced with a suitably sized metal tube. 10mm OD tube is a neat fit for RG8, UR67 style coax. The tube is cut for the total dipole length "A" with small brass plugs being used to provide the short between inner and outer conductors. The method used to achieve the short will depend on the material used but be guided by the following. Tin the brass slugs. If the tubing is copper or brass the plugs may be soldered in place through a small solder hole in the outer tube. If aluminium tube is used the plugs may be secured by some small screws into the brass slug. If the screws and tube are dissimilar metals then protection from the atmosphere will be necessary to avoid corrosion. In any case the brass plugs are first soldered to the inner conductor. Again dimension "B" is critical and remains dependant on the velocity factor of the cable used. With method B it is not necessary to enclose the entire antenna. Just seal up the ends of the tube and also the termination with the main feedline.

The author has constructed one of each type to date including 2m version using LDF4 hardline coax according to method A and enclosed in PVC conduit for weatherproofing.This antenna was designed for 146.5 MHz and pruning of element lengths was not necessary to achieve the following VSWR characteristics; 144 MHz less than 1.2:1 146.5 less than 1.2:1 and 148 MHz 1.5:1.

A 70cm antenna was constructed in accordance with method B using 10mm aluminium tube and UR67 coax. It was designed for 435 MHz (Band Centre) and its VSWR was under 1.5:1 across the band (420-450 MHz). Again, these figures were obtained without the need to prune the element lengths.

These dipoles do work and offer a matching system and a construction method which is highly recommended to anyone looking for a simple yet rugged antenna. The elimination of external matching devices (gamma etc) make it an ideal portable antenna. Its on air performance is equal to any conventional unity gain antenna.

Reproduced by arrangement from 'Smoke signals' October '82
AR

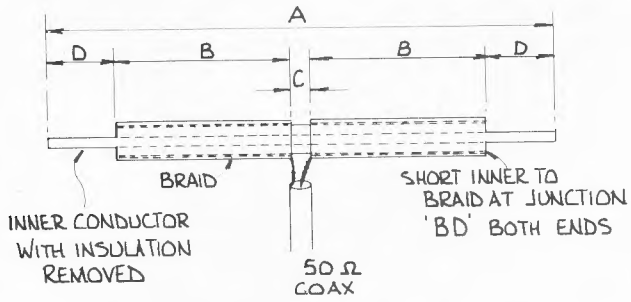


Fig 1: Method A. For construction — see table for dimensions

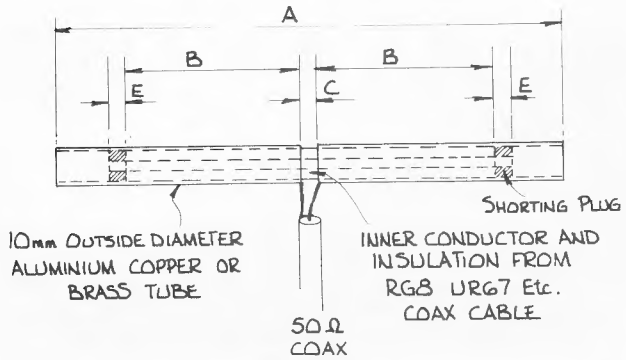
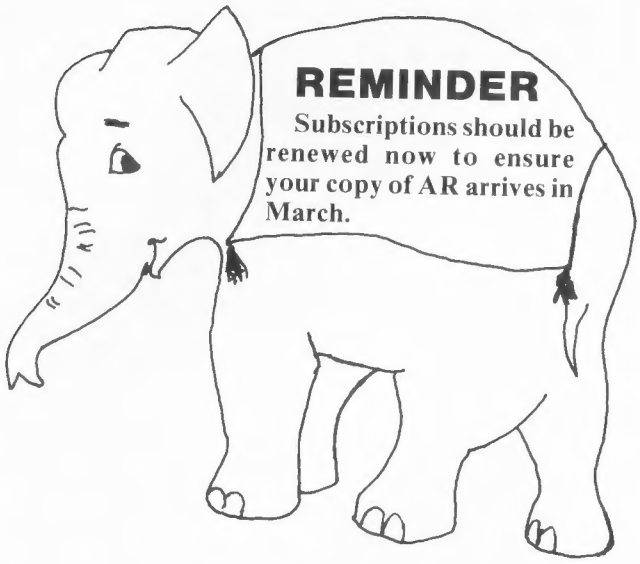


Fig 2: Method B. For construction — see table for dimensions

TABLE

Dimension	Remarks
A	Normal dipole length. L(mm)=299780 x k / 2fMHz k= (approx) .9 for 10mm tube @ 450 MHz k= (approx) .93 for 10mm tube @ 146 MHz
B (IMPORTANT DIMENSION)	Electrical ¼ wavelength. L(mm)=299780 x v / 4fMHz v= velocity factor of coax used, allow .66 for RG8, UR67 etc. allow .88 for FHJ4, LDF4 etc.
C	The braid or outer jacket is removed for this dimension. Use 10mm for 2m band and 70cm band. A larger gap could be allowed for lower frequency bands.
D	Inner conductor without insulation. This length may be trimmed during final adjustment of antenna.
E	Shorting plug used to short inner conductor to outer tube. See comments in main text.



MAGPUBS VHF COMMUNICATIONS

Subscribers please note that annual subscription rates have been increased for 1983. The new rates are:

By Airmail $13.20
By Surface $ 9.00

Subscriptions to : MAGPUBS — WIA PO Box 300 Sth Caulfield 3162.

THE CONVENIENCE REVOLUTION

Daiwa CNA-1001

A brilliant line-up of high quality Amateur radio accessories from Daiwa.

Daiwa specialises in providing the very best in Amateur radio accessories.

You can set your antenna with a choice of Daiwa Heavy Duty and Medium Duty Rotators. They'll get you going in the right direction. Type X allows you to pre-set the call area you want and Type R comes with Paddle Switch control and world map display.

Daiwa Coaxial Switches give you low loss and good isolation. They all complement Vicom's own unbeatable relays and operate from HF to 70cm.

For hands off operation, the famous Daiwa cross-needle meters are ideal. They provide three measurements with the press of one PTT button. And their compact size means they'll fit into even the most crowded shack.

Daiwa make some of the most advanced Antenna Tuners on the market. both Automatic and Manual models are available. Their rugged design and ease of operation makes them a must for any Amateur station!

See the complete range of Daiwa accessories at Vicom's showroom in Melbourne. Alternatively, most reputable dealers stock Vicom products.

VICOM

People to People.

MELBOURNE:
Vicom International Pty. Ltd.,
57 City Road, South Melbourne, Victoria (03) 62 6931
SYDNEY:
Emtronics, 649 George St., Sydney (02) 211 0531
WELLINGTON, N.Z.:
Malvicom, 18 Raroa Road, Lower Hutt (4) 697 625

Dealer enquiries invited.

WIA NEWS

AUSTRALIAN TABLE OF FREQUENCY ALLOCATIONS

As a result of lengthy negotiations by the WIA with the Department of Communications new frequencies have been allocated to amateurs. Still under discussion is the 50-50.15 MHz band which will hopefully be finalised this month.

Mr Ross Ramsey of the DOC wrote to the president on the publication of the tables thanking him for the part played by the WIA in the finalisation of the tables.

Further to the information given on the insert in the January issue of AR, a number of alterations have also been made to Australian VHF and higher amateur bands. Details of all changes are contained in the "Australian Table of Frequency Allocations October 1982" publication ISBN 0 644 01791 0 and now available from the Government Printing Service.

Briefly, changes to the VHF and higher frequencies are as follows:

52-54 MHz — *No change*

NOTE: A new allocation to amateur service (on a secondary basis) is included in the 50-52 MHz segment, however a frequency table footnote, AUS23 states —

"In the band 50-52 MHz, the amateur service shall not cause harmful interference to the broadcasting (television) service. Amateur operations in this band shall be subject to special conditions as determined by the Department of Communications from time to time."

At the time of printing (mid-Jan.) no part of the 50-52 MHz allocation is available to the amateur service as the special conditions referred to in footnote AUS23 are still under discussion between the Institute and the DOC.

144-148 MHz — *No change, exclusive amateur allocation.*

420-450 MHz — *Remains a shared allocation, amateur secondary service.*

576-585 MHz — *No change, footnote AUS30 states:*

"The band 576-585 MHz is also allocated to the amateur service until such time as the band is required for use by the broadcasting service."

1215-1240 MHZ — *Withdrawn, no longer available to amateur service world wide.*

1240-1300 MHz — *Remains a shared allocation, amateur secondary service.*

2300-2450 MHz — *Remains a shared allocation, amateur secondary service.*

3300-3500 MHz — *Remains a shared allocation, amateur secondary service.*

3500-3600 MHz — *New amateur allocation. Same status as for 3300-3500 MHz allocation.*

5650-5850 MHz — *Remains a shared allocation, amateur secondary service.*

10.00-10.50 GHz — *Remains a shared allocation, amateur secondary service.*

24.00-24.05 GHz — *Remains exclusive amateur allocation.*

24.05-24.25 GHz — *Remains a shared allocation, amateur secondary service.*

47.00-47.20 GHz — *New exclusive amateur allocation.*

75.50-76.00 GHz — *New exclusive amateur allocation.*

76.00-81.00 GHz — *New shared allocation, amateur secondary service.*

119.98-120.02 GHz — *New shared allocation, amateur secondary service.*

142.00-144.00 GHz — *New exclusive amateur allocation.*

144.00-149.00 GHz — *New shared allocation, amateur secondary service.*

241.00-248.00 GHz — *New shared allocation, amateur secondary service.*

248.00-250.00 GHz — *New exclusive amateur allocation.*

Amateur satellite bands are as follows:

7000-7100 kHz
14000-14250 kHz
18068-18168 kHz — *Available in future (ITU resolution 8)*
21000-21450 kHz
24890-24990 kHz — *Available in future (ITU resolution 8)*
28000-297000 kHz
144-146 MHz
435-438 MHz — *Shared, refer to footnote 664.*
1260-1270 MHz — *As above.*
2400-2450 MHz — *As above.*
3400-3410 MHz — *As above.*
5650-5670 MHz — *As above.*
5830-5850 MHz — *Shared, refer footnote 808.*
10.45-10.50 GHz — *Shared, secondary allocations.*
24.00-24.05 GHz — *Exclusive allocation.*
47.00-47.20 GHz — *Exclusive allocation.*
75.50-76.00 GHz — *Exclusive allocation.*
76.00-81.00 GHz — *Shared secondary allocation.*
142.00-144.00 GHz — *Exclusive allocation.*
144.00-149.00 GHz — *Shared secondary allocation.*
241.00-248.00 GHz — *Shared secondary allocation.*
248.00-250.00 GHz — *Exclusive allocation.*

NOTE:

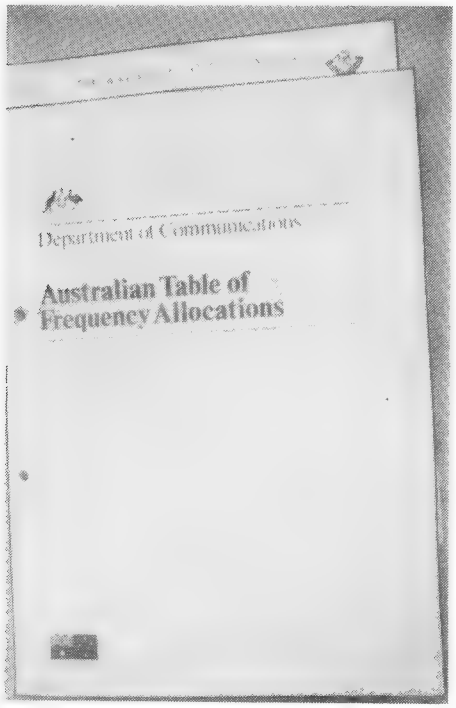
1. Footnote 664 states:

"In the bands 435-438 MHz, 1260-1270 MHz, 2400-2450 MHz, 3400-3410 MHz (in Regions 2 and 3 only) and 5650-5670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No.

435). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **2741**. The use of the bands 1260-1270 MHz and 5650-5670 MHz by the amateur-satellite service is limited to the Earth-to-space direction."

2. Footnote 808 states:
"The band 5830-5850 MHz is also allocated to the amateur-satellite service (space-to-Earth) on a secondary basis."

AR



Information from DOC advises of revised arrangements concerning the issue of amateur radio station licences in respect to stations proposed to be operated in Australian External Territories. The listing hereunder details the State Offices and the Territories for which they are responsible.

STATE OFFICE	*TERRITORY*
New South Wales	*Norfolk Island*
Queensland	*Coral Sea Isand Group*
	Willis Island
Western Australia	*Christmas Island*
	Cocos (Keeling) Islands
Tasmania	*Heard Island*
	Macquarie Island
	Australian Antarctic Mainland

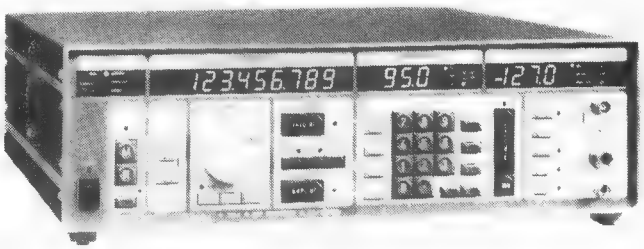
Unnecessary delays will be avoided if in future all applications and enquiries are submitted to the Manager of the appropriate State, in accordance with normal procedure, as outlined in the Department's general licensing brochure RB68 and the information given above.

AR

* Please remember your STD code when advertising in HAMADS.

THE PROFESSIONALS

THE PROFESSIONAL SIGNAL



The Adret 740A Signal Generator is an advanced instrument incorporating the latest achievements of frequency synthesis and microprocessor management. It has exceptional ease of operation and incorporates the following features.

- 100kHZ – 520 MHZ
- 100kHZ – 1120 MHZ (with doubler option)
- AM-FM-PM-PULSE (option)
- Spin wheel or keyboard entry of all parameters
- Permanent storage of 40 complete configurations
- 10HZ resolution
- RF auxiliary output
- IEEE488
- 20 ns switching time
- Clear and unambiguous controls
- Stability 1 x 10^7 per day

The Adret 740A Signal Generator is available from your nearest Vicom office or agent (listed below).

Vicom. The Professionals. The official representatives of the most significant overseas companies in the Electronic Communication Industry. And backed up by Vicom's professional expertise and unbeatable after sales service.

VICOM

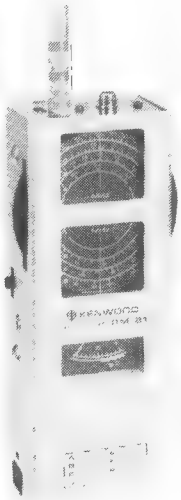
People to People.

VICOM INTERNATIONAL PTY. LTD.,
57 City Road, South Melbourne, Victoria (03) 62 6931.
Eagle House, 118 Alfred Street, Milsons Point, N.S.W. (02) 436 2766.
Malvicom, 18 Raroa Road, Lower Hutt, Wellington, New Zealand (4) 697625.
Wormald Communications, 72-80 Belgravia St., Belmont. W.A. (09) 277 8944.
Elite Electronics, 8 Cox Road, Windsor, Q'ld. (07) 579 400.
International Communications, 8 Nile Street, Port Adelaide. S.A. (08) 473 688.
Navcom Electronics, 6 Manton St., Darwin. N.T. (089) 817414.

KENWOOD

TR-7950 2M FM TRANSCEIVER

$480 COMPLETE WITH MOBILE ANTENNA



DM-81
DIP METER

$95
WITH FREE BATTERIES

1983 is the year for Huge Savings on most of Kenwood's models!

NEW R-2000 RECEIVER
WITH MEMORY SCAN, PROGRAMME SCAN & MEMORY MODE RETENTION

$599 OPTIONAL VHF CONVERTER AVAILABLE EASTER '83

Dr. David Lewis leader of the 1982/83 Oceanic Research Antarctic Expedition has chosen Kenwood Communications Equipment on board the "Dick Smith Explorer". Where lives and safety are paramount and reliability is of prime importance – the professionals always choose KENWOOD

PLUS FREE HAND MIKE

TS-430S NOW AVAILABLE EX STOCK!
$950 with Mobile Mount (FM additional $49)

TRIO-KENWOOD (AUSTRALIA) PTY. LTD.
(INCORPORATED IN N.S.W.)
4E WOODCOCK PLACE, LANE COVE. SYDNEY, N.S.W. 2065. Ph. (02) 428 1455.

NEW SOUTH WALES

SPRINGWOOD CAR RADIO — SPRINGWOOD (047) 51 4930
UNIQUE ELECTRONICS — 383 MERRYLANDS ROAD, MERRYLANDS (02) 682 3325
WASSELL ELECTRICAL — 10 McNAMARA STREET, ORANGE (063) 62 6249
STOCKMAN & HIGGINS — BYRON STREET, INVERELL (067) 22 1300
ELECTRON 2000 — 3 ELIZABETH STREET, TIGHS HILL, NEWCASTLE (049) 69 6399
MACELEC PTY LTD. — 99 KENNY STREET, WOLLONGONG (042) 29 1455
RADIO WORLD PTY LTD. — 81 NEWCASTLE STREET, FYSHWICK (062) 80 6550
DX ENGINEERING — 5 JASMINE STREET, PORT MACQUARIE (065) 83 2127
LAND LINK — MULLALEY ROAD, GUNNEDAH (067) 42 2838
LAND LINK — 61 BARNES STREET, TAMWORTH (067) 65 4622

INTER-STATE

VIC: EASTERN COMMUNICATIONS – 168 ELGAR ROAD, BOX HILL (03) 288 3107
BRIAN STARES — 11 MALMSBURY STREET, BALLARAT (053) 39 2808
SUMNER ELECTRONICS — 78 KING STREET, BENDIGO (054) 43 1977
CODLIN ELECTRONICS — MOE (051) 27 4516

TAS: HOBBY ELECTRONICS — 83 CARELLA STREET, HOWRAH, HOBART (002) 47 6674
GELSTON ELECTRONICS — 40 LAVENDER GROVE, SUMMER HILL (003) 44 3882
ADVANCED ELECTRONICS — 5A THE QUADRANT, LAUNCESTON (003) 31 7075
V.K. ELECTRONICS — 57 WEST PARK GROVE, BURNIE (004) 31 1708
QLD: MITCHELL RADIO CO — 59 ALBION ROAD, ALBION (07) 57 6830
S.A. & N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. — 8 NILE ST., PORT ADELAIDE (08) 47 3688
W.A.: ARENA COMMUNICATIONS SERVICES — 642 ALBANY HWY., EAST VICTORIA PARK (09) 361 5422
TRI-SALES — CNR NEWCASTLE & CHARLES STREETS, PERTH (09) 328 4160
WILLIS ELECTRONICS — 73 STERLING STREET, PERTH (09) 328 9229
GRAHAM ROGERS — 18 BANKSIA STREET, BUNBURY (097) 21 2236
RON DENT — 115 PATON ROAD, SOUTH HEDLAND (091) 72 1112

a word from your EDITOR

1983 AND ONWARDS

Now that the Christmas and New Year holidays are well behind us, it is time to face reality and start work again. This year we can foresee another busy year ahead for the Institute. Of prime importance at this time of the year is our forthcoming Federal Convention, to be held as usual at the Brighton Savoy motel, in Melbourne. The dates for the convention are April 23, 24 and 25, — that is only a little over **two months away**.

I can recall writing something similar this time last year, to remind readers of the need to forward your thoughts to your division early, so that your divisional representatives are adequately briefed in the presentation of your particular item.

Remember, under our constitution, all agenda items must be in the hands of the Federal Secretary 30 days prior to the convention. This is to enable agenda items to be forwarded to and discussed by the other divisions, so that a particular policy may be determined and voting cast accordingly. WIA policy is determined by the divisions, and **NOT** the Executive as some of our members have thought recently.

If you have a pet theory which you think is worthy of consideration, it **MUST** be submitted to your division for discussion first. Your division's representatives will decide whether or not your item is to become a convention agenda item at its next council meeting.

Too much convention time has been wasted in the past in dealing with agenda items which are of a local or parochial nature. The WIA policies as determined by the seven councillors at the convention reflect matters of NATIONAL importance, and embrace **all** amateurs throughout Australia.

The executive itself has the power to raise items to be placed on the agenda, but it is unable to vote on their acceptance or otherwise. The executive items are usually restricted to matters of administration, or Department of Communications liaison etc. The executive cannot accept agenda items direct from members.

Time is again closing in on us, and at the time of writing this editorial (1st January '83), only one agenda item has been raised so far. You should act immediately, and advise your division of your thoughts so that adequate investigation and preparation can be made on your behalf.

Visitors to the convention as usual will be made most welcome. To enable proceedings to continue without interruption, I would ask those members intending to 'look in' for a short while, could you let your councillor know in advance, and appropriate measures will be taken to ensure sufficient seating is available.

RADIO MASTS INVESTIGATION

An item which will have gone unnoticed by many of you appeared in the Victorian Government Gazette during December 1982. It was only a small and insignificant announcement, but the ramifications contained therein could have far reaching effects on the entire amateur radio community. I refer to the proposed government investigation into the erection of radio masts and the environment. Full details of the announcement are published elsewhere in this issue, please read that item thoroughly.

TWO HATS

Following the resignation of the Federal President, Mr Peter Wolfenden VK3KAU as announced on the federal tapes recently, the President's chair will be kept warm by yours truely in my capacity as Executive Vice Chairman. This appointment is for an interim period only up to the coming Federal Convention, when a new Federal President will be officially appointed.

WCY

Most of you will have noticed our involvement with the World Communications Year (WCY '83) celebrations. This is an important step for the WIA and we trust all will be able to make some small personal contribution (not money!) to ensure its every success.

Publicity in the media for our hobby cannot be bought, it must be earned. The national dailies and commercial TV and radio stations are mainly interested in news of 'sensational' nature. Confusion by reporters and editors in comparing the amateur radio service and the citizens band radio (CB), more often than not tends to be detrimental to the amateur service. In their eyes, every person that operates a radio transmitter is a 'CBer', and 'CBers' and 'HAMS' are one and the same!

Naturally this type of publicity also confuses the general public, a point which we are all aware of, but have done little to rectify.

As part of the WCY preparations, the federal WIA is co-ordinating ideas from the divisions and is putting together various 'packages' which can be of use in the education of the general public.

One factor that is often overlooked is the local weekly newspaper. From past experiences, it has been shown that editors of local papers are more willing to accept news of a less sensational or insignificant nature. This is mainly because of the 'local' effect and its general interest impact on a smaller (by comparison) population and circulation.

News of clubs doings, WICEN, educational courses, community displays at the local level etc are able to be publicised quite effectively by this means. It is an area worth fostering further, but it does require an amateur in the local area to make the initial contact with those in control. I would ask that we all make a conscious effort to ensure suitable publicity is arranged for events which you consider are newsworthy, and which do not contravene the terms of the secrecy provisions associated with your licence.

AR

This year also shows promise of a further successful year. Already plans are well advanced to bring you further 'bumper' issues, due mainly to our increased membership and support generated by our advertisers. There are some excellent technical articles in the preparation stages, and we intend to continue to improve the high quality publication you have come to expect from last year.

We would like to thank those members who have given us words of encouragement recently.

If you have not yet renewed your current subscription, then this will be your last issue of AR. Members who have not paid their 1983 subs by the 15th February will have their names deleted from our computer address labels. There is no guarantee that missed AR's will be replaced in the event of a subsequent renewal.

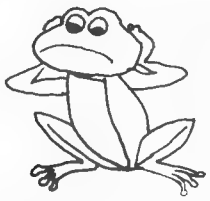
This seems a pity, but we must contain costs within our operating budget therefore only sufficient magazines will be printed to allow for distribution to the paid up members. Both of us are therefore the loser.

Your financial support through your membership subscription enables the WIA to continue its work to represent **your** interests. Without your individual membership support, we go backwards.

Please give this serious thought.

Bruce R. Bathols, VK3UV,
WIA Acting President and AR Editor.

AR



QSP

YOUR HOBBY IS UNDER THREAT

Intruders, pirates, interference, restrictions by Government decree on one hand and not enough on the other, these are the threats that face us. It is imperative that you are aware of these dangers and know how to combat them. It is essential that you keep yourself informed of all aspects of these threats.

There are intruders in our bands, broadcasters and commercial point to point services. There is a world wide intruder watch organization supported by most national societies, but it comes down to you, the individual amateur, to be the intruder watcher. The incidence of pirates appearing on our frequencies is increasing. How do you handle these situations?

Then there is EMC, electromagnetic compatability. We all suffer from interference of one sort or another, often that which can be easily stopped at its source. In turn, we, ourselves, can cause interference to entertainment devices in our own and in our neighbours homes. How prepared are we to deal with these threats to our operating time?

Government regulation and the lack of it hangs over our heads, both local and federal. Already, in a number of states, court cases regarding aerial masts and towers have been fought. The lack of regulation allows all sorts of interference to continue unabated, and also allows transmitting equipment to be sold by anyone to anyone without question of licence.

These are the changes that amateur radio faces today but they pale into insignificance when we consider the greatest danger of all — APATHY.

Bud Pounsett VK4QY
Editorial in QTC
VK4 Division AR insert
November '82

AR

MORE SCAN FOR YOUR DOLLAR

with the brilliant

DICK SMITH PRO 40 SCANNER

Compare this superb Scanner with others of similar performance elsewhere, at nearly twice the price! The new PRO 40 Scanner from Dick Smith represents the state-of-the-art in computerised scanning receivers! Completely solid state computer-controlled circuitry – no expensive crystals to buy – complete with battery backup for stored frequencies.
Cat D-2805

$399

you can hear . . .

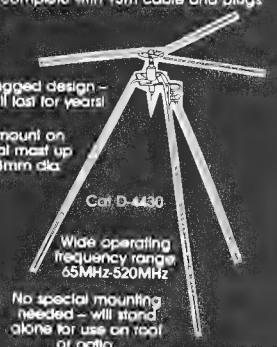
Just about everything from harbour control nudging a supertanker into its berth, to telephone conversations from cars speeding along city streets! All the emergency services, authoritiies and forces . . . And of course, there are thousands of business radio stations, amateur and CB radio operators. Plus the thousands of stations in the band that we don't know about yet (we're waiting for you to tell us about them!)

look at these special features

Touch-type, splash proof keyboard for direct entry of all operational commands, frequencies, etc. Ideal as either a base or mobile scanner (operates on 12V – beware of others that don't operate from 12V!) with its own self-contained whip dntenna or external plug-in antenna. Also included is a specially prepared Australian instruction manual written and produced by our own engineers.

SCAN X ANTENNA

Designed especially for scanners! Very easy to assemble, comes complete with 15m cable and plugs


Rugged design – will last for years!
Will mount on vertical mast up to 38mm dia.
Cat D-4430
Wide operating frequency range 65MHz-520MHz
No special mounting needed – will stand alone for use on roof or patio.

$49.95

Also available from good bookshops and newsagents

DICK SMITH'S AUSTRALIAN RADIO FREQUENCY HANDBOOK

Up-to-date and thorough listings of virtually all the VHF/UHF radio users we've been able to find. YES – find out who is where – and where to listen for all the excitement! PLUS: air band, marine band, and how to use a scanner, amateur radio and CB etc.
Cat B-9600

$12.95

DICK SMITH Electronics

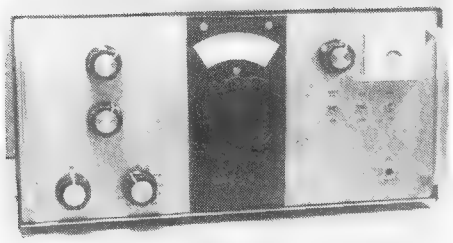
DSE A413 LM

NSW Auburn 648 0558 – **Bankstown Sq.** 707 4888 – **Blakehurst** 546 7744 – **Bondi Jct.** 387 1444 – **Broadway** 211 3777 – **Brookvale** 93 0441 – **Chullora** 642 8922 – **Gore Hill** 439 5311 – **Liverpool** 600 9888 –**North Ryde** 888 3200 – **Parramatta** 689 2188 – **Sydney (Bridge St)** 27 5051 – **Sydney (York St)** 290 3377 –**Tamworth** 66 1961 – **Tighes Hill** 61 1896 – **Wollongong** 28 3800 **ACT Fyshwick** 80 4944 **VIC Coburg** 383 4455 – **Frankston** 783 9144 – **Geelong** 78 6766 – **Melbourne** 67 9834 –**Richmond** 428 1614 **QLD Brisbane** 229 9377 – **Buranda** 391 6233 – **Chermside** 59 6255 **SA Adelaide** 212 1962 – **Darlington** 298 8977 – **Enfield** 260 6088 **WA Perth (William St)** 328 6944 – **Perth (Hay Street)** – **Cannington** 451 8666 **TAS Hobart** 31 0800

A "SQUARE-ONE" RECEIVER—

Part 2

Drew Diamond, VK3XU,
43 Boyana Cres., CROYDON, 3136

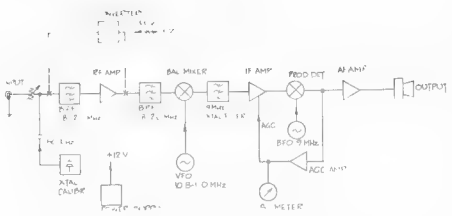


CIRCUIT DESCRIPTION

The input RF amplifier is only used for reception of the 1.8 to 2.0MHz band. Ideally, a transistor specifically designed for this application, such as a 2N5109 or a 2N5179 should be used at Q1 to obtain low noise figure and high dynamic range. These devices are difficult to buy in small quantities however, so the easily obtainable 2N3053 was tried and found to perform satisfactorily. This stage has a gain of 10dB. It employs a bipolar transistor with feedback, and as a result is not easily overloaded or damaged by the application of excessively large signals. Rejection of out of band signals is obtained with a band-pass filter at the input and output of the RF amplifier. Input and output impedances are approximately 50 ohms.

Receivers with high dynamic range — greater than about 80dB, have become necessary due to the large number of strong signals which may be encountered on HF bands today. Much has been written lately about mixers and amplifiers with high dynamic range, and experimenters seem to favour the ring Schottky diode mixer. During the development of this receiver, IMD measurements were performed upon active mixers and a ring diode mixer. It was found that a dynamic range of 83dB could be obtained with the ring mixer, and 80dB using a CA3028 active mixer. However, the ring mixer required at least +10dB (10MW) of local oscillator signal to achieve this performance, had a −6dB insertion loss, the diodes were hard to obtain, and a weak spurious was noted at 1.812MHz. In view of these disadvantages, and the only marginally better performance, an active mixer was employed.

The mixer is singly balanced, and has 0dB gain. U1, a CA3028 differential pair is driven in push-pull via input transformer, T2. The 100 ohm resistors R10 and R11 terminate the balanced secondary of T2 so that the input impedance of the mixer is close to 50 ohms. VFO at 10.8 to 11.0MHz is injected into the current source transistor of U1 in common mode, so little or no VFO signal appears at the output of the mixer. 9MHz IF energy is coupled via T3 to the crystal filter. Once again, 100 ohm resistors are used to obtain correct impedance values. R12 and R13 have the additional function of absorbing mixer products which are not at the IF, thus reducing their amplitude and the danger of reduced dynamic range. A diplexer is therefore not required.



Block Diagram of Square One Transceiver.

9MHz crystal filters have become hard to obtain, so 27MHz third overtone CB crystals were tried. By choosing crystals whose 9MHz fundamental frequencies are about 3kHz apart, a reasonable half-lattice filter can be made. The −6dB points were measured at 9005 and 9008kHz, passband ripple was less than 1dB, and insertion loss was about −6dB. Equipment was not available to measure shape factor, but on-air performance indicates that it is adequate for most listening conditions. Not a bad filter for under $20.

The IF amplifier is tuned to 9MHz, and provides the greatest gain block in the receiver — about 50dB. CA3028s are used at U2 and U3 in the single-ended mode. A voltage is applied to pin 7 of U2 and U3 to effect AGC action. When a very strong signal is tuned in, the AGC line will drop to about +2V, and reduce the gain of the IF amplifier. When a weak, or no signal is applied, the AGC voltage will be about +8V, so allowing maximum IF gain.

The product detector performs similarly to the mixer already described, with the exception that IF plus or minus BFO equals audio. One

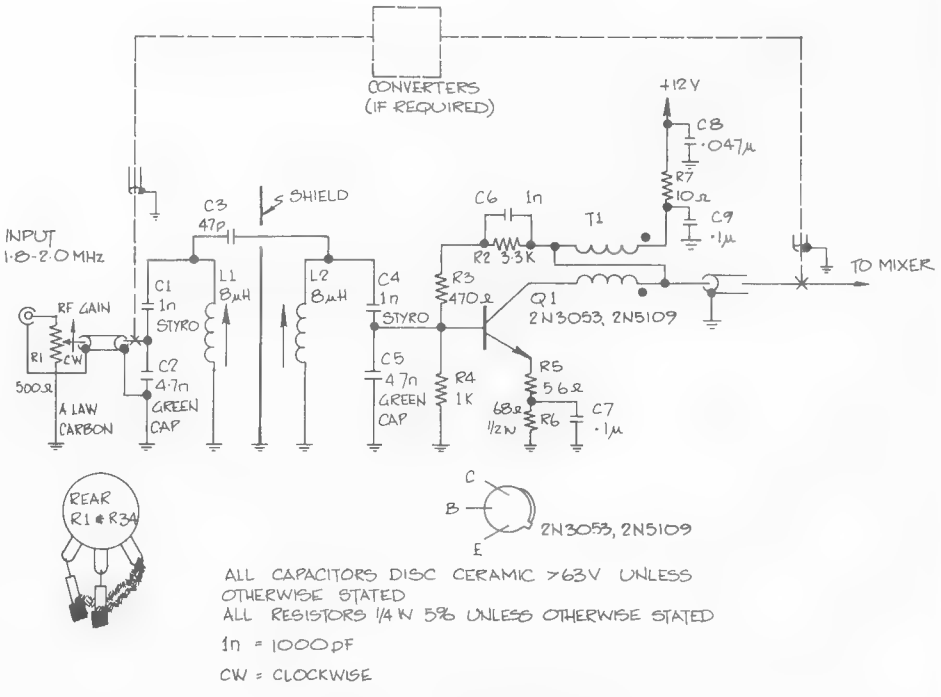


Figure 1 — RF Amplifier

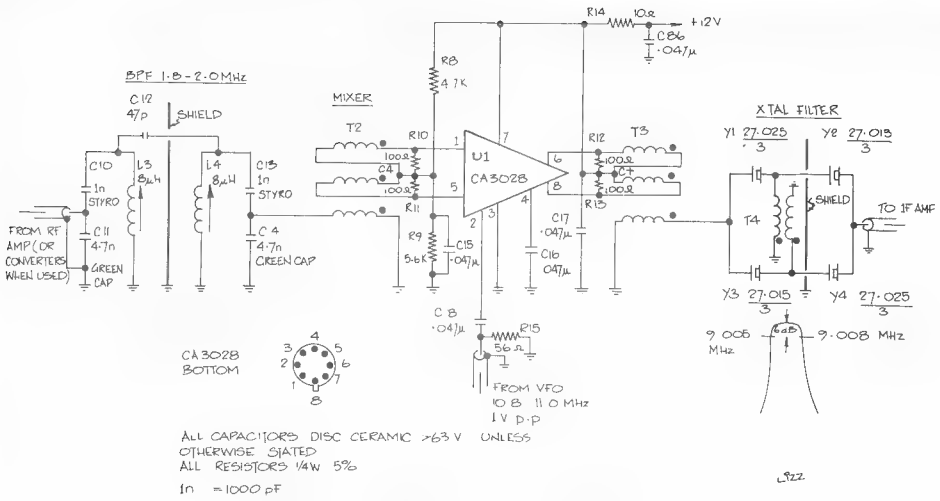


Figure 2 — Mixer and 9MHz Crystal Filter

Detected audio is divided into two paths at the secondary of T5. Audio gain is set by the front panel pot, R34. Some preamplification is provided by Q7 before the audio signal is applied to the ever-popular LM380 at U5, which supplies sufficient power to operate speaker or headphones.

crystal at about one third its marked frequency of 27.015 supplies BFO frequency. For USB reception, the BFO must be on the high side of the IF passband. eg, signal on 1.800, VFO on 9.008 + 1.800 = 10.808MHz. Now, if a modulating signal upon the incoming signal is 1kHz (1.801), 10.808 – 1.801 = 9.007MHz. 9.007 beats with 9.008 BFO and so produces 1kHz audio at the secondary of matching transformer T5. For LSB, the BFO must be on the low side of the IF passband. To supply 9.005MHz, the crystal Y5 is pulled low by the use of series inductor L10, switched in by removing the ground from the base of Q3. To produce 9.008MHz, the crystal is pulled high by switching in series capacitor C56 with the removal of the ground at the base of Q4.

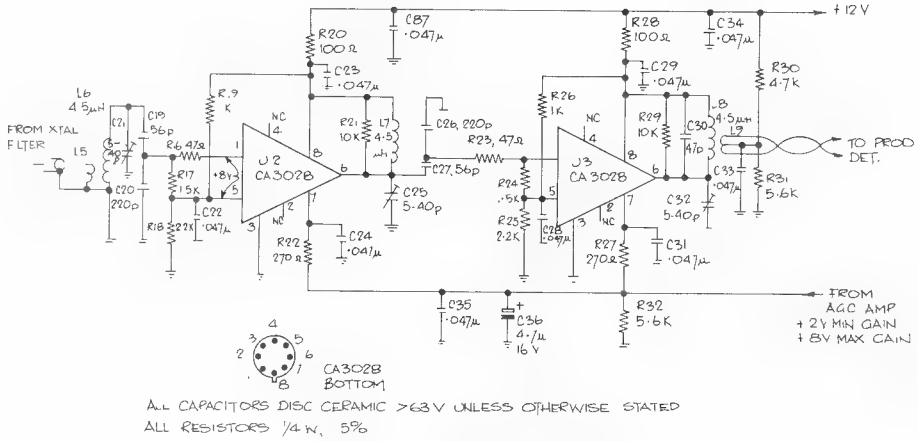


Figure 3 — 9MHz IF Amplifier

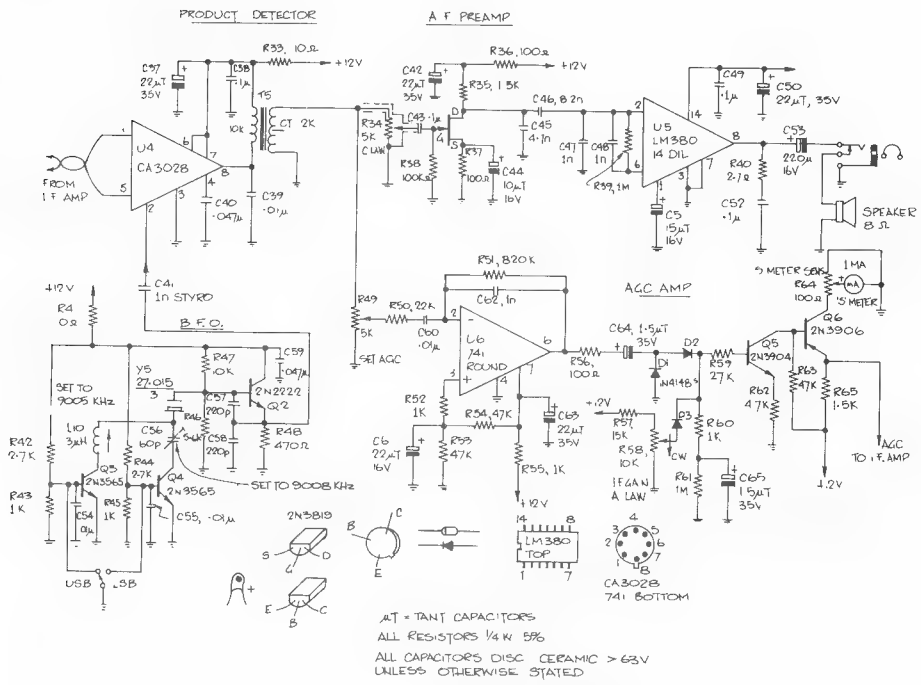


Figure 4 — Product Detector, AF Amplifier and AGC Amplifier

A small proportion of audio is picked off via R49 and applied to the AGC amplifier U6 — an ordinary LM741. Amplified audio is rectified by D1 and D2, and C65 is charged with a positive voltage which is proportional to the audio level of the received signal. AGC time constant is set by R61 and C65. The values indicated are a fair compromise for CW and SSB AGC characteristics. A DC amplifier, Q5 and Q6, supplies the CA3028 compatible AGC voltage.

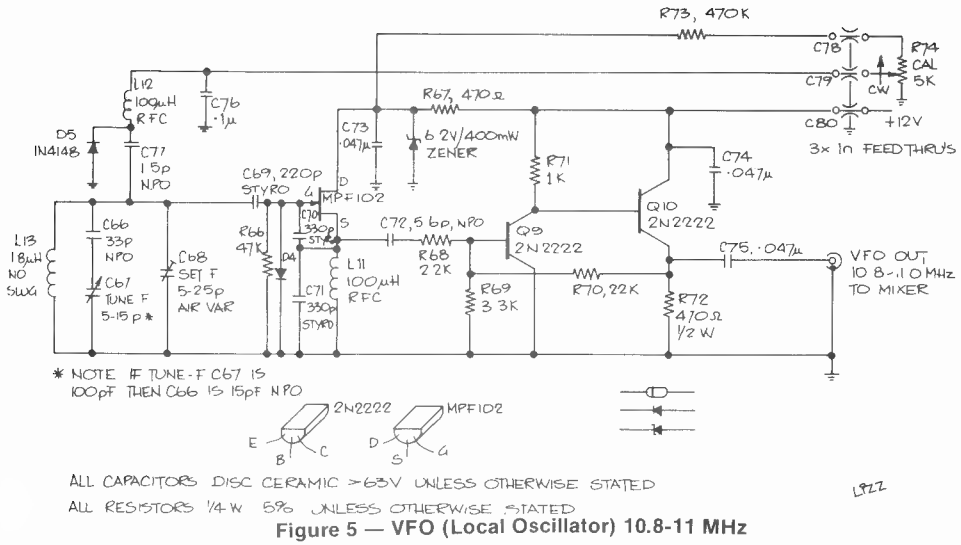


Figure 5 — VFO (Local Oscillator) 10.8-11 MHz

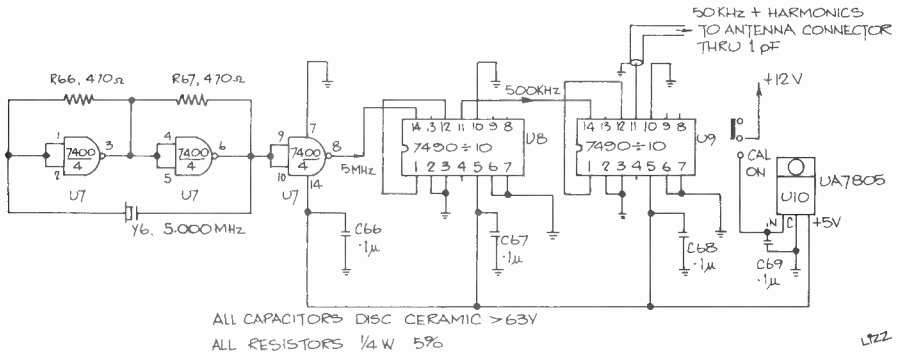


Figure 6 — Crystal Calibrator

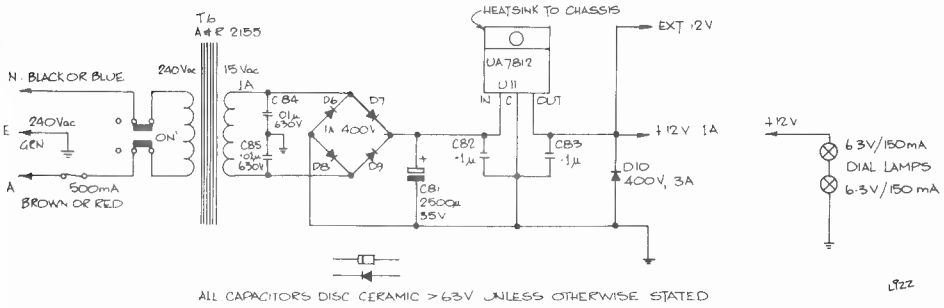


Figure 7 — Power Supply

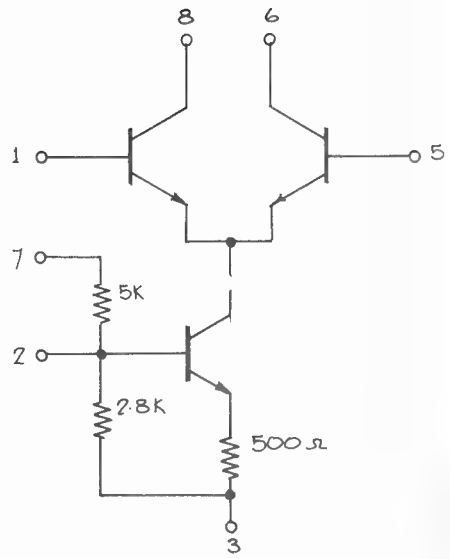


Figure 8 — Internal Circuit of the CA3028

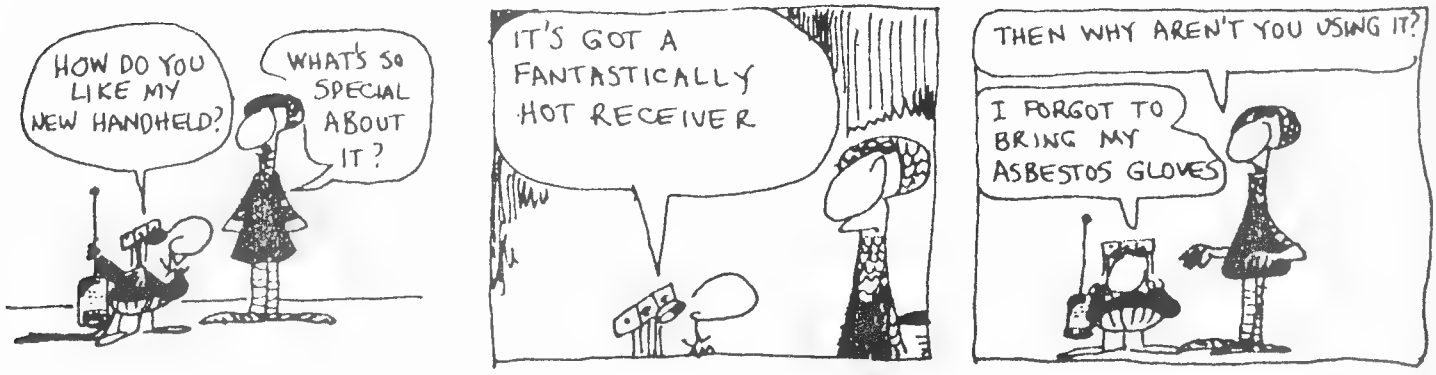
As collector current in Q6 is proportional to signal level, a milliammeter is connected here to indicate signal strength. Manual IF gain control R58 injects a positive voltage into the base of Q5 to decrease the gain of the IF amplifier. Use of this gain control will only be necessary when extremely strong signals are being received.

Part Three will have construction details and board layouts.

References:

1. Solid State Design — ARRL.
2. ARRL Handbook — 1980.
3. ARRL Handbook — 1982.
4. Radio Communication Handbook — RSGB.
5. "Modern Receiver Mixers for High Dynamic Range" — QST Jan. '81.

AR


HOW DO YOU LIKE MY NEW HANDHELD?
WHAT'S SO SPECIAL ABOUT IT?
IT'S GOT A FANTASTICALLY HOT RECEIVER
THEN WHY AREN'T YOU USING IT?
I FORGOT TO BRING MY ASBESTOS GLOVES

from "Propagator" October 1982

RED CROSS MURRAY CANOE MARATHON

Gil Sones VK3AUI
30 Moore Street, Box Hill South.

Between Christmas and New Year, a group of amateurs provided communications for the conduct and safety of the annual Red Cross Murray Canoe Marathon. This is the major WICEN practice exercise in Victoria. Operators taking part provide essential communications and safety links for the conduct of the marathon.

Checkpoint in Barmah Forest

Small Power Boat ferrying operator VK3XNW.

Neil VK3XNW operating on boat "Relax 78".

The Red Cross Murray Canoe Marathon is a major canoeing event with a course of four hundred kilometres on the Murray River. The start is at Yarrawonga on Boxing Day, the 26th December and the finish is in Swan Hill on New Years Eve, 31st December.

WICEN operators set up stations at the start and finish of each days course and at intermediate checkpoints. Stations are also set up in power boats on the river and, this year, in an ambulance. Other stations are attached to mobile key officials and first aid teams.

As the marathon moves down the river, camps are established in a different town each night. Whilst facilities are steadily improving, the number of participants is also growing each year.

New ideas and techniques are tried to handle the volume of traffic. This year RTTY was tried with mixed results. The main lesson being that well established and field proven stations were required. Heat, dust and mobile power supplies can really play hell with sophisticated equipment.

Weather conditions are usually hot and it is usual for there to be one storm during the period. This year was no exception with a damp night in Echuca and a violent combination of dust and electrical storms at the finish in Swan Hill.

The drought meant that the river level was down on previous years, however the flow of water for irrigation was sufficient to ensure the conduct of the event. Even the larger power boats were able to follow the canoes right through to Swan Hill.

Ken VK3ALO operating RTTY at one of the checkpoints during the 1982 Murray Marathon. AR

NOVICE NOTES

Compiled by
Ron Cook, VK3AFW
7 Dallas Avenue, Oakleigh Vic 3166.

Antenna Tuners — Trick or Treat?

This month we will discuss the general theory of antenna tuners in a descriptive manner followed by a practical design next month.

At some time in your amateur career you will be faced with the problem of using a single wire antenna or perhaps a dipole as a multi-band antenna. Assuming that you have a modern rig, connecting a feedline with a VSWR greater than 2:1 is undesirable and a VSWR greater than 3:1 unacceptable. So what can you do as the VSWR of an off-resonant antenna may be 10:1 and, if Murphy has his say, that's exactly the situation you will be facing. The answer is of course an Antenna Tuning Unit or an ATU for short.

Naturally your junk box has all the necessary bits but before you rush out and start drilling holes in Mother's aluminium baking dish or her best cake tin (what else would you use for a chassis?) lets consider the various circuit configurations. Indeed how does any ATU work?

THE FUNCTION OF AN ATU

An ATU must perform two functions. Firstly it must resonate the antenna-feeder system. Secondly it must transform the resulting resistive load to the one required by the transceiver, which we will assume is 50 ohms.

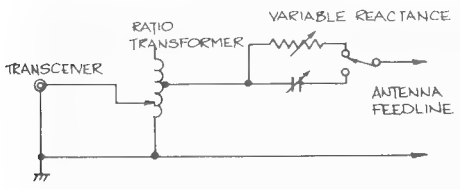


Fig 1(a) Elements of an ATU.
A variable reactance resonates antenna feedline system. Ratio transformer; transforms resistance of resonated system to 50 ohms.

Fig 1 (a) shows a stylised ATU. There is provision for connecting just the right amount of reactance in series with the line to cancel out the reactive component at the end of the line. If, for example, the antenna system presented a reactance that on 3.6 MHz looks like a 10 ohm resistance in series with a 147 pF capacitor, then the VSWR would be too high to measure on a VSWR meter. If we connect 13.3 μH in series it will be resonant with the capacitor giving a zero series reactance so we are left with a 10 ohm load which is a VSWR of 5:1. A step-up transformer with a turns ratio of 2.24: 1:2.24 will give the perfect match we desire.

You will remember that the resonance of a circuit occurs when the reactive components cancel. Now it is not immediately obvious that 147 pF will resonate with 13.3 μH at 3.6 MHz but if we use the standard formulae, $Xc = 1/2\pi fC$ and $Xl = 2\pi fL$, we get 300 ohms for 147 pF and 13.3 μH becomes 300 ohms and it is obvious that in series the sum is zero and hence we have resonance.

Back to the ATU. While performing the two functions the ATU should not be inefficient. That is, it should not be lossy or, if it is not connected to any external circuit, it should have a very high Q which amounts to the same thing. This condition is sometimes referred to as being a high unloaded Q.

When the transceiver is connected to the ATU which is in turn connected to the antenna system the Q should be low. This is referred to as a low loaded Q. A high loaded Q means that if the operating frequency is changed then the ATU must be readjusted even if the frequency change was relatively small. Most simple ATUs have a good matching range but also have a medium loaded Q requiring several retunes of the ATU as the transceiver is moved across an amateur band. All practical ATU's must perform the functions of tuning and matching illustrated in Fig 1 a. Fig 1 b shows a possible circuit.

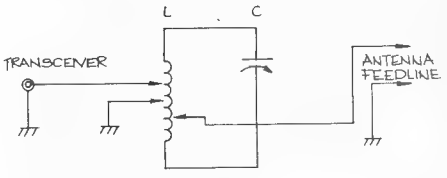


Fig 1(b) Simple ATU Circuit
L and C resonates the antenna system. Ratio adjustment is by variable tappings on L. This is a tuned transformer arrangement and is not broad-banded.

ATU CIRCUITS

The L Network

Fig 2 shows a simple practical circuit. It is called an L network because of the circuit diagrams similarity to the letter L. L and C can be adjusted to have many combinations which resonate at the operating frequency but there is only one combination of settings that will give both resonance and a 50 ohm load for the transceiver. If the antenna system presents a reactance which

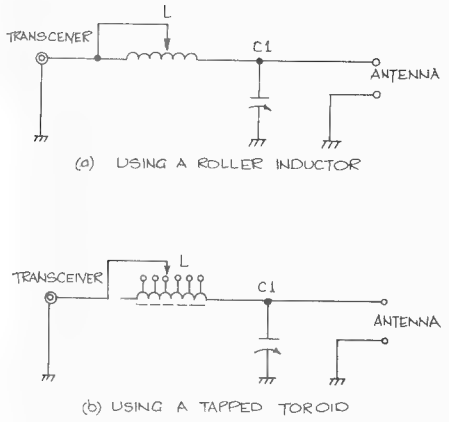


Fig 2 ATU using an L-Network circuit.
The circuit is slightly different if the coil L is wound on a toroid (see b) than when an air solenoid is used as in a. Inexpensive commercial ATU's use this circuit which works well with end fed wires.

is capacitive then the value of C1 for resonance is reduced by that amount. The antenna system is "tapped across" the tuned circuit formed by L and C1, while the tranceiver load is in series.

This circuit is popular in inexpensive commercial ATU's. It is capable of matching most practical antennas. If you find that a particular ATU will not match an antenna add a length of wire or feeder about ⅛ of a wavelength long to the antenna system, in the shack at the ATU, and try again.

The L network provides additional harmonic suppression.

For low power or receiving applications a small toroidal coil with taps may be used for L and a receiving type variable capacitor used for C1.

On some occasions it may be advantageous to swap the antenna and transceiver connections.

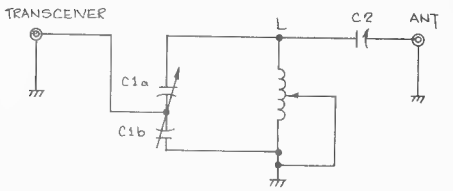


Fig 3 The Ultimate Transmatch
This ATU will match most random wires and other antennas used for HF operation. Note that C1 is a differential capacitor and not the usual two-gang capacitor.

THE ULTIMATE TRANSMATCH

Another popular circuit is shown in Fig 3. This is the Ultimate Transmatch. As it's name implies it can match most antennas to 50 ohms on all HF bands. It is also a circuit frequently misunderstood. The problem is C1. This must be a differential capacitor and not the ordinary "two gang". As C1a is increased in capacitance, by turning the shaft, C1b is reduced. Two single capacitors can be connected in tandem, with one inverted, to produce a differential capacitor. L is an air-cored roller inductor and C2 is a variable capacitor typically of 270 pF maximum. For high power the spacing of the capacitor plates needs to be generous if arc-over is to be avoided. This is true of any ATU of course. A combination of C1 and C2 is used to resonate with L. Adjusting C1 varies the tapping point of the transceiver thus giving a correct match.

Adjustment can be a four-handed affair. One hand operates the rig, one tunes C1, one tunes C2 and the fourth adjusts L.

If you can locate a differential capacitor and a roller tuning inductor your antenna tuning problems are as good as solved.

Once the optimum settings for each band have been found record them on a card for future use.

The ultimate Transmatch does not always provide much harmonic rejection.

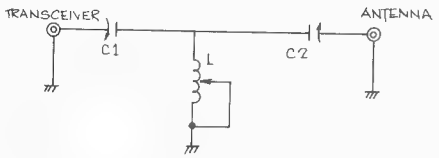


Fig 4 The T-Network ATU
This is a simplified version of the Ultimate Transmatch. It does not provide any harmonic suppression.

THE T NETWORK

Fig 4 shows a T network, so called for the similarity between the circuit diagram and the letter T. It is similar to the previous circuit and is almost as versatile. C1b is omitted (otherwise it is the same circuit) so ordinary capacitors only are required. Note that the shafts of both capacitors are "hot" and both shafts should have insulating connections to the tuning knobs. A short length of knitting needle is useful here.

The T network does not have significant harmonic attenuation.

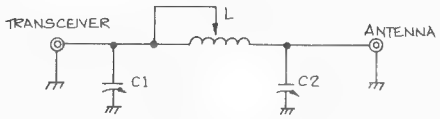


Fig 5 ATU using a Pi-Network
Many medium priced commercial ATU's use this circuit. C1 and C2 are often labelled "LOAD" and "TUNE" respectively. Harmonics are attenuated by this circuit.

THE PI NETWORK

Fig 5 is our old friend the pi network. It looks like the Greek letter pi. Fig 6 shows the circuit redrawn to illustrate how the antenna system is tapped across C2 and the transceiver across C1. The circuit matches a wide range of reactances and is very popular with commercial ATU makers. The components used in the old AM transmitters are very suitable for a home-brew pi ATU. The inductor may be tapped if a roller inductor is not available.

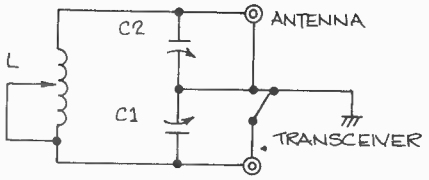


Fig 6 Alternative arrangement of Pi-Network Circuit which illustrates how antenna and transceiver taps are adjusted by C1, C2 which also provides tuning.

The adjustment of the relative settings of C1 and C2 vary the transformation ratio as well as the resonance which is of course achieved by adjustments of L as well.

The pi coupler has good harmonic suppression characteristics. C1 is sometimes called the LOAD control and C2 the TUNE control while L may be provided with one tap for each band. This tapping arrangement is a compromise between ease of operation and range of impedances that can be matched.

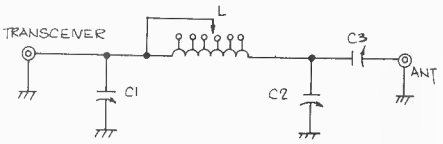


Fig 7 Wide Range ATU circuit
C3 transforms the antenna system impedance into a valve suitable for connection across the tuning capacitor C2.

WIDE RANGE TUNER

Fig 7 shows a wide range tuner based on the pi network. C3 has been added to allow tapping of L (no expensive roller inductor) yet retain the ability to match any useable antenna on any HF band (well as near as any other affordable system will). The details of its construction will appear next month.

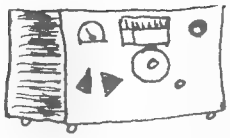
It is in fact one of the old AM output circuits turned around. C2 is the old "tune" control and C1 is the "load" control. The switch which adjusts the tap on L is the old plate circuit band-change switch. In the AM transmitter the load was usually 50 ohms so with L switched to the appropriate band C1 is set in the same position for the ATU as it was in the AM rig, provided that the resistance across C2 is also the same as in the AM rig. A typical plate load was 2000 ohms so if C3 can be adjusted to give the antenna system the same equivalent resistance the rest of the network is as it was for the AM rig. The same components can of course be used. Unfortunately the operation of C3 is not always sufficient to provide this ideal situation. The result is an ATU that will match most practical HF antennas although sometimes the loaded Q is not as low as would occur in a perfect ATU.

Next month we will discuss the construction of this ATU which has an inbuilt twin VSWR meter.

73 de Ron VK3AFW

AR

TECHNICAL CORRESPONDENCE



Following our reprint of articles on the G5RV antenna in our December issue (which by the way was done after many requests from newcomers), Jim Davis VK7OW has written to us and has outlined briefly an up-dated version of this popular antenna.

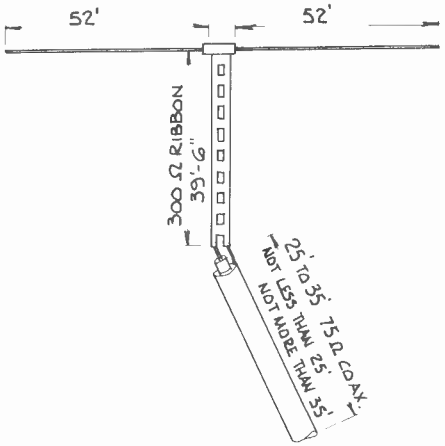
Here are relevant excerts from Jim's letter:

"The popular G5RV antenna, which I understand, originally appeared in "AR" in 1973 is a most informative article, although now outdated. You will agree that a lot has happened in ten years.

In our little town, not only do we now have running water, but Bullock drays now no longer churn up our main street, instead, the occasional horseless carriage is noticed choofing up the street.

So also with the G5RV. There is a Mark II version now — since around 1979. About eighteen months ago, I had a long QSO with a "G" station who was a friend of Lou Varney — G5RV – and he gave the details of the improved Mark II G5RV.

I gave these details to a friend, David VK7MS, and he built the best G5RV I have seen. He has a row of pine trees — about seventy feet high either side of his property, and he slung the G5RV Mk2 between these.



Revised details of the G5RV.

The down-lead drops straight all the way — into his shack. It performs superbly.

I also gave the information to a very good W7 friend, in Arizona. He built a Quarter sized version for portable work, and I have worked him on this antenna. Sure, he was 3-4 S points down on his beam, but he had a most readable signal.

The revised details are as follows."

Editors note:

Many thanks for your letter Jim, and we would be grateful if any reader has any further details of the G5RV Mk2 version, particularly the theory of operation, bands operative and critical lengths of the 300 ohm stub and 75 ohm coax. Please forward comments to me at PO Box 300, Caulfield South, Vic. 3162.

Bruce Bathols VK3UV Editor:

AR

RADIO AMATEUR OLD TIMERS' CLUB QSO PARTIES

Each year, two QSO parties will be held for members of RAOTC Australia, and Old Timers' Club New Zealand.

Members are requested to cut out this notification and keep it before them as the days, times, and bands will remain fixed.

RULES

ELIGIBILITY — The parties/contests are open to members of RAOTC (Australia) and OTC (New Zealand).

Note — There are members of the Australian Club in overseas countries who could possibly participate at the times laid down.

CONTEST EXCHANGE — Members will exchange:

1. *Their Club membership number, VKs prefixed by "A", ZLs prefixed by "Z".*
2. *Year of first licence.*
3. *Name.*
4. *Age.*

E.g. Number A256 1951 Bill 49
Number Z128 1923 Harry 78

SCORING — One completed contact with a member on CW or SSB but not both, will score 5 points.

MULTIPLIER — the total of VK, ZL and Overseas call areas contacted.

FINAL SCORE — Contact points times multiplier.

DATES, TIMES, AND BANDS

No. 1 — Second Monday in March — 20 metres 0200 to 0500 UTC.

Please spread out around centre frequencies CW 14.050 and SSB 14.150 MHz.

No. 2 — Second Monday in August — 40 metres 0800 to 1100 UTC. Centre frequencies CW 7.015, SSB 7.075 MHz.

ENTRIES — Claimed scores showing mode (CW, SSB or CW/SSB), number of QSOs and multiplier should be forwarded to John Tutton VK3ZC, 31 Denham Street, Hawthorn, Victoria 3122.

All amateurs who have been licensed for a period of 25 years or more are eligible to join the Radio Amateur Old Timers' Club. A self-addressed envelope (9 x 4) to the Secretary, Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Vic. 3225 will bring you a membership application form.

1983 Contests — 14th March and 8th August.

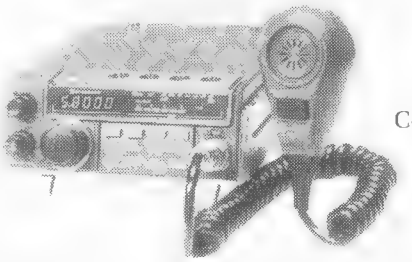
AR

STANDARD

C-5800E NEW FM, SSB, CW 25 WATT TRANSCEIVER

So small it should be a portable. **$532**

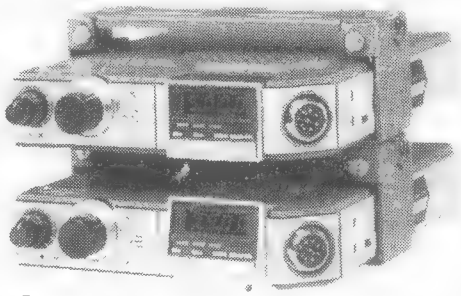
The Standard C-5800E includes many features not previously available on a 2 meter multi-mode transceiver. For example it weighs only 1.75 Kg with dimensions of 149 (w) x 54 (h) x 208 (d) mm. For complete details on this revolutionary transceiver write or call us for a brochure.



C-5800E

C-7900E COMPACT 10 WATT UHF FM AMATEUR TRANSCEIVER $409

Small in size, 138 (w) x 31 (h) x 178 (d) mm., the 70 cm C-7900E uses unique circuitry and layout to achieve 10 watts power output and extremely high receiver sensitivity.



C-8900E

$358

C-7900E

C-8900E COMPACT 10 WATT 2 METER FM TRANSCEIVER

Twin brother to the C-7900E, the C-8900E is equipped with all the same outstanding features except it is ready to operate on144 to 148 MHz. For complete technical specifications on both these units write or call us for a brochure.

NIRECOM

VHF MONITOR RECEIVERS

The FS-10 Series of VHF 10 channel pocket scanning monitor receivers are designed to give exceptionally high sensitivity. This is achieved by incorporating a cascade RF amplifier stage and a telescopic ¼-wave antenna. No bigger than a cigarette packet and no heavier than a pocket notebook the Nirecom FS-10 uses a rugged double sided epoxy-glass printed circuit board and is housed in a high impact plastic case. With a capability of scanning up to 10 crystal controlled channels or being locked on just one, the FS-10 is ideally suited to a wide range of monitor applications. Both battery charger and rechargeable Ni-cad batteries are supplied with all versions.

FS-10HF	**$185**	Victorian Country Fire Authority or South Australian CFS version. Fitted with 7 crystals for the VHF high band.
FS-10H	**$163**	VHF high band, may be tuned to any 4 MHz segment from 150 to 170 MHz. No crystals supplied.
FS-10L	**$163**	VHF low band may be tuned to any 2 MHz segment from 70 to 85 MHz. No crystals supplied.
G-01H	**$13**	Short (10 cms) rubber duck antenna for FS-10H.
G-01L	**$13**	Short (14 cms) rubber duck antenna for FS-10L.
G-OC	**$13**	Belt mount carrying case for FS-10.
PS-393	**$13**	Car charger for FS-10 series.

Seaphone

NR-6000 VHF MARINE TRANSCEIVER

The NR-6000 6 channel marine transceiver is your passport to easy communication in the VHF sea-phone marine band. Operating on 6 crystal controlled channels within any 4 MHz segment of the marine band, the NR-6000 is the ideal way to keep in touch with other boats, shore stations, coastguards and emergency services. Approved to the Australian DOC specifications of RB275C, it is a self-contained communications system small enough to keep in your life jacket or on the bridge.
The internal rechargeable battery pack gives complete freedom of use.
The NR-6000 is supplied complete with crystals fitted for Channel 16 (emergency channel), rechargeable batteries, AC/DC battery charger, rubber duck antenna, earphone, carrying case and handstrap.

$366

X-SA	**$10**	Standard GFS stock crystals to suit Nirecom FS-10 series and NR-6000. (Enquire about frequencies.)
X-SO	**$24**	Crystals to order for FS-10 and NR-6000 (2 weeks delivery).

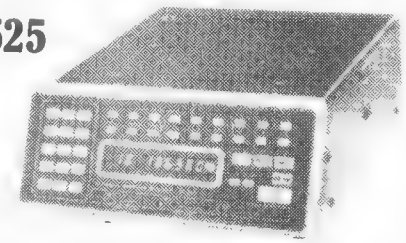
J.I.L.

JIL MODEL SX-200 HF/VHF/UHF PROGRAMMABLE SCANNING RECEIVER

THE SX-200 includes many unique features not provided on any other scanner. For example, its wide frequency coverage of 26 to 88, 108 to 180 and 380 to 514 MHz. Its capability of receiving over 33,000 channels. 3 mode squelch that can be set to only allow the SX-200 to stop on carrier with modulation signals. 16 Memory channels that can be expanded to 32 with the EXP-32 kit. AM and FM detection on all bands. For full details write or call us.

$525

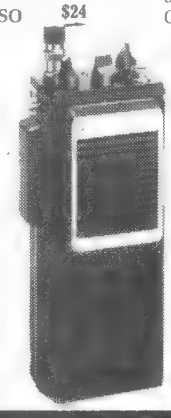
SX-200
HF/VHF/UHF
33,000
CHANNELS



SX-36	**$122**	Converter for SX-200 Provides receiving capability of 280 to 320 MHz.
EXP-32	**$49**	Memory Expander kit increases memory channels in SX-200 from 16 to 32 channels.
A-4AM	**$30**	**Air Band Auto AM Kit.**

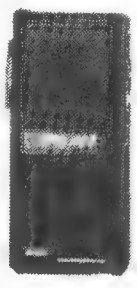
SKY ACE

R-517	**$125**	Palm-size airband receiver equipped with across the band tuning plus facilities for 3 crystal locked channels.
PS-30	**$12**	AC adaptor for R-517.
X-SA	**$10**	Standard GFS stock crystals to suit R-517. (Enquire about frequencies.)
X-SO	**$24**	Crystals to order for R-517 (2 weeks delivery).



NR-6000
MARINE
RADIOTELEPHONE

NIRECOM
FS-10



SKY ACE
R-517

AUSTRALIAN AGENT & DISTRIBUTOR
GFS ELECTRONIC IMPORTS
Division of GD & JA WHITER PTY. LTD.

15 McKeon Road, Mitcham, Vic. 3132
PO Box 97, Mitcham, Vic. 3132
Telex: AA 38053 GFS
Phone: (031) 873 3939, 873 2652

EQUIPMENT REVIEW

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

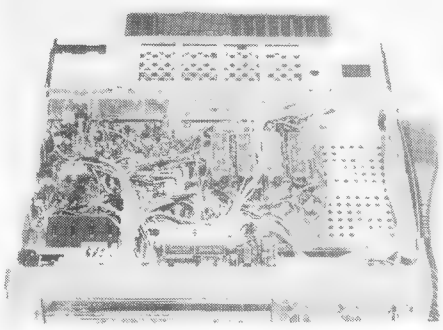
THE KENWOOD TS-430S HF TRANSCEIVER

The trend in amateur equipment design for HF operation seems to be towards the general coverage type transceiver. Up to the present time this has only been available in relatively expensive gear, but with the introduction of the new Kenwood TS-430S, we have the first popular priced transceiver with full general coverage capability. Maybe with the present state of the art in amateur design, it just might be as economically viable to build a full coverage design as it is to build a normal band switched transceiver.

Well you might ask, just what is the TS-430S. Many astute readers might have noticed the introduction of it in the Kenwood advertisement on page 50 of the December issue of Amateur Radio. I would guess that Kenwood decided to keep its introduction rather subdued, as there will be no way they will be able to keep up the supply when the word gets around about their superb performance.

Perhaps the best way to describe the TS-430S is to say that it is a compact version of the TS-930. It does not have a built-in A/C power supply, but is intended for operation from either a 13.8 volt power supply or a 12 volt battery for mobile operation.

A quick look at our photo will show that the 430 is just a little larger than the popular TS-130S transceiver. It is the same height, same depth but 29cm wider than the 130. Now pack into this package a 100 watt transceiver with operation on all amateur bands from 160 to 10 metres, a receiver with full coverage from 150kHz to 30 MHz and we start to see just the beginning of what this amazing transceiver has to offer. Unfortunately my time with the 430 was rather limited, so this review is perhaps more of a preview. However, I hope I can give you a good idea of what you might expect from this transceiver.

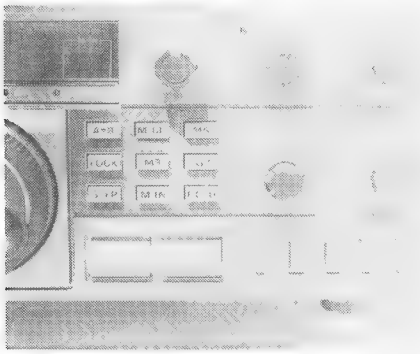


Top view with cover removed.

THE TS-430S TECHNICAL FEATURES

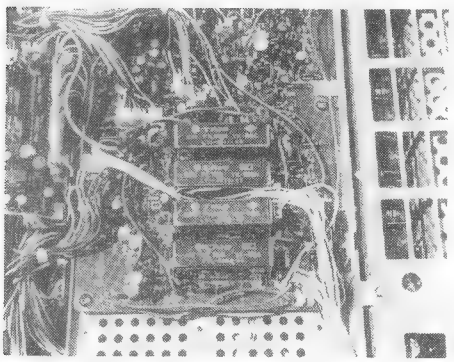
The TS-430 is of course a fully solid state transceiver with a broad band final that does not require any tuning. The receiver has provision for reception on SSB, CW, AM and FM and has full general coverage from 150 kHz

to 30 MHz in one MHz steps. However the band switching up/down buttons can be programmed to select either the next higher or lower amateur band or one MHz up down steps. Split operation is available with two synthesized VFOs which have two tuning rates. Eight memories can be programmed and these are then available for recall at any time, even if the primary supply voltage is removed. An internal lithium battery is built in to store memories for up to five years. Not only do we have the eight memories but it is possible to set up each of them in any particular mode that the 430 is capable of operating in. Memory scanning is selectable from the front panel keyboard with five second monitoring on each in turn. Imagine being able to check a couple of local broadcast stations, your favourite amateur band channels on a mixture of USB, LSB, CW and FM. The FM feature is an optional extra, as are the CW, AM and narrow SSB filters. However with the very low basic price, I can see that many amateurs will put in all the options when they purchase the transceiver.



Front Panel Keyboard.

Other features include an IF shift, notch filter, RIT control for receive only, built-in speech processor, squelch control for use with the optional FM mode. In addition there is a noise blanker and a front end receiver attenuator. A wide/narrow switch selects either the normal or narrow (1.8kHz) SSB filter, or 2.4kHz or 500 Hz CW selectivity.



Filters.

The final transmitter output stage looks very much like the TS-130S PA unit and incorporates the same fan unit which is thermostatically controlled. A carry handle is fitted to one side of the cabinet, which is a great improvement over the TS-130, which did not provide one.

Unfortunately our review TS-430S did not come with a normal handbook, so it is rather hard to comment on the circuit. Apparently the transceiver was an early production model air mailed out for demonstration purposes. I look forward to seeing the handbook in the near future.

THE TS-430S ON THE AIR

The first thing noted when I attempted to get the 430 set up was that there is no AC power switching with the power on/off switch. The power connector is compatible with the PS-30 but you will need to operate two switches instead of one as with the TS-130. Strange to say the least.

Once on and operating, the 430 is a joy to use. Although there are many controls on the front panel, it only takes a very short time to sort out the various functions. Band changing is by two large buttons. One produces an up frequency shift, the other a down shift. To the right of these is a smaller button labelled 1MHz step. Push this and the main band change button then gives the one MHz steps in place of the amateur bands. The tuning knob is a good size and has a very smooth action. The two tuning rates should please everyone. The slow rate is in 10Hz steps and this really spreads things out.

Operation mode is selected by five push buttons to the left of the tuning knob. As each is selected a status indicator comes up alongside the appropriate button. The mode selection is USB, LSB, CW, AM and FSK. By the way, if you are scanning the memories which includes different modes, the status indicators will follow the memory selected mode. The memory channel in use is shown by a special readout to the right of the frequency display.

For mobile operation a frequency lock button holds a given frequency regardless of any operation of tuning or scanning controls.

Due to the short time that I had the 430 I was unable to carry out our normal technical tests. Only power output was checked and the following results were obtained:

160	80 watts	20	70 watts
80	85 watts	17	65 watts
40	80 watts	15	60 watts
30	80 watts	13	60 watts
		10	70 watts

This is a little down on what we might consider a normal 100 watts output, but it is still a very satisfactory result and in fact quite comparable to the older TS-130S transceiver. PEP output on SSB was about the same as viewed on the scope with a clean pattern. On-air tests for intermodulation distortion showed that the 430 was not quite as good as some equipment tested, but quite satisfactory.

The speech processor used in the 430 is a simple audio type and not an RF clipper. It appears to be similar to the processor used in the TS-130 and the TS-530. Results obtained with it were certainly worthwhile but not up to the better RF clipper types. Audible distortion appeared to be quite low.

Receiver sensitivity was very good when compared to our normal station transceiver and strong signal handling excellent. Under normal use we found no front end overload at all.

The noise blanker worked well on ignition noise and fairly well on domestic electrical noise but produced no effect on the Wood Pecker at all. Pity, as in every other respect the 430 performed very well indeed.

CONCLUSION

The TS-430S is certainly a new generation of HF transceiver. It would seem to be in a class of its own and will soon change amateurs' ideas of just what a transceiver should do. In one stroke, it has made most existing transceivers obsolete. The TS-430S is highly recommended. Our test transceiver from KENWOOD Australia via Eastern Communications of Box Hill South, Victoria.

FOR YOU ANTENNA BUFFS:

Aside from physical damage, the most common fault in the antenna system is low resistance to ground. Moisture in the antenna system (ie impedance matching networks, coax cables, etc.) dirty insulators and coax dialectric breakdown all cause varying degrees of shunting resistance and must be guarded against if maximum efficiency is to be expected. Testing is accomplished by using a megger or if one is not handy, a simple ohm meter will suffice.

Theoretically, any transmission line system should read infinity on the megger, but this reading is not always possible to obtain. Abrupt changes in the weather, high humidity, or other natural causes often result in low resistance readings. Often resistances may be raised by cleaning the insulators. The coax cables and other cables and fittings used to connect the equipment should also be tested. A check of continuity of the antenna / transmission line system should be made periodically. The following values are suggested.

1. A resistance of 200 megohms or more to ground indicates that the antenna system is in good condition.

2. A resistanct of 5 to 200 megohms to ground indicates the insulators need cleaning or the coax is contaminated with water.

3. A resistance of less than 5 megohms to ground indicates that the antenna system is in bad shape and an urgent need exists to locate the low resistance point and correct it.

from "ARNS Bulletin"
Aug., 82

HAAT IS IMPORTANT . . .

About twenty years ago I was employed by my fellow citizens to ride around in bombers, a mostly boring job, with occasional exciting moments. There is the excitement of physical danger (a different series of stories), and the excitement of snagging exotic DX.

On one of our training missions, due to a computer malfunction, we scrubbed, and hung around our home base to burn off fuel for a safe landing weight. The B-47 had no provisions for dumping. We flew big circles at 22,000 feet, just west of Abilene TX.

It was my custom to set in 14.340 in our ARC-65, for use when I wasn't busy. This mission was lost, so I played with the Collins, calling "CQ, this is K5RPB mobile." I expected no reply, since it was 0300 local. Just maybe someone in Big D or Cowtown would be awake.

"K5RPB, this is VK3AHO."

I switched my Intercom from HF and asked the co-pilot where he learned the exotic call. He denied fooling me, saying he was half asleep. Back to HF. It really **was** VK3AHO! Excitement, excitement . . .

The three of us talked to Bram for 20 minutes or so, and to two other Aussies. For a little over an hour, K5RPB was the only signal heard from North America. That incident made a believer of me in LeMay's world-wide sideband nets, and highlighted the importance of Height of Antenna Above Terrain.

From Bud Martin, KV4FR
ARNS Bulletin, Aug , 82

EVALUATION AND ON-AIR TEST OF THE KENWOOD TS-430S

Category	Rating	Comments
APPEARANCE		
Packaging	★★★	Foam inserts, plastic wrapped, strong carton.
Size	★★★★	For a full general coverage transceiver, amazing!
Weight	★★★	
External finish	★★★	Good, but not quite as good as other Kenwood gear.
Construction quality	★★★	Seems to be well constructed.
FRONT PANEL		
Location of controls	★★★★	Very practicable layout.
Size of knobs	★★★	A bit small for big fingers, but for the number of functions, very good.
Labelling	★★★★	Clearly labelled.
Meter	★★	Rather tizzy appearance and hard to read.
VFO knob action	★★★★	Very smooth. Finger hole right size and adjustable tension.
Digital readout	★★★★	
Analogue	NA	No analogue dial.
Status indicators	★★★	
REAR PANEL	★★★	Most required facilities available.
RECEIVER OPERATION		
VFO stability	★★★★	See test section.
Digital dial accuracy	★★★★	Spot-on readout.
Analogue dial accuracy	NA	
Memories	★★★★	Best yet seen in any transceiver.
Shift/width	★★	Only IF shift provided.
Notch filter	★★★	Audio notch — not IF, but works well.
Peak filter	NA	
Optional filters	★★★★	Four filters can be fitted.
Spurious responses	★★★	A few weak ones. Not audible with antenna connected.
'S' METER	★★	Action good but hard to read under low external light conditions.
AGC PERFORMANCE	★★★	Not tested, but appeared very good.
SIGNAL HANDLING	★★★★	No overload noted.
CLARIFIER (RIT)	★★	Operates on receive only. No frequency indication of shift on digital dial.
SENSITIVITY	★★★★	
RF ATTENUATOR	★★	Normal attenuator — about 15dB.
RF GAIN	★★★	Smooth, progressive action. Threshold type.
NOISE BLANKER		
Line noise	★★	Some reduction in certain types of line noise.
Auto ignition	★★★	Good effect, but effectiveness reduced on strong signals.
Woodpecker	★	No noticeable reduction.
Effect on signal handling	★★★★	No apparent cross modulation.
QUALITY OF RECEIVED AUDIO		
Internal speaker	★★	Reasonably well balanced.
External speaker	NA	No matching accessories have been released. Good quality with my own external speaker.
Headphone output	★★★	Stereo headphones match well.
Cooling fan noise	★★★★	Fan only operates under extreme conditions and then very quiet
Relay noise	★★	Quite noticeable with VOX operation.
TRANSMIT OPERATION		
CW power output	★★★	See test section of text.
PEP output	★★★	
Audio quality	★★★	Smooth transmit quality.
Audio sensitivity	★★★	Plenty of audio gain.
Speech processor	★★★	Audio compressor type.
ALC action	★★★	Easy to set mic level.
Metering	★★	ALC, IC and 'S' meter only. Also see comments on meter above.
Cooling	★★★★	Ran cool even on hot day.
VOX operaion	★★★	Satisfactory apart from relay noise.
QSK operation	NA	
CW operation	★★★	VOX keying worked well.
Manual (owner's handbook)	NA	No manual available at time of test.
Further comments		A very compact, highly complex transceiver. Attractive to look at and easy to use after some practice. Band change method both for amateur bands only or for general coverage receive is superb. At the suggested retail price of $999 with FM option is should sell like hot cakes.

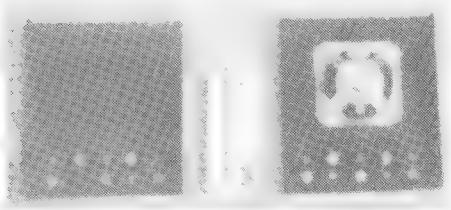
Rating Code: Poor * Satisfactory ** Very Good *** Excellent ****

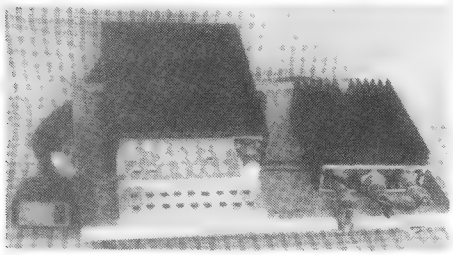
Improving the Duty Cycle of the FM 321 & 320

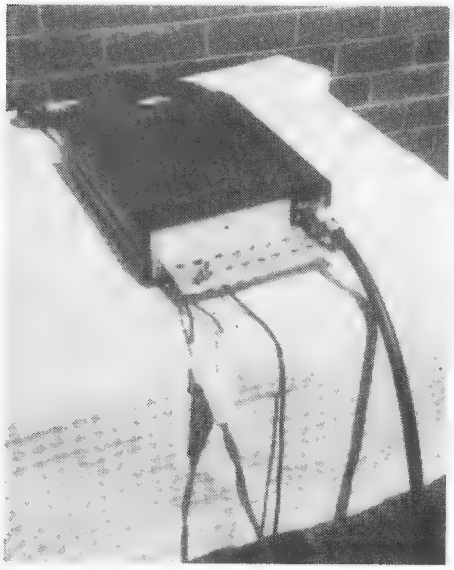
Nev Fenton VK2BQ
10 22nd Avenue, West Hoxton, NSW 2171

Both these units can be modified very simply to improve their duty cycle. (Two minutes on transceive, two minutes on receive). The ventilation modification alone helps to keep the temperature down. The cooling fin/heat sink improved the duty cycle to four minutes transceive, two minutes receive or better on the writer's equipment.

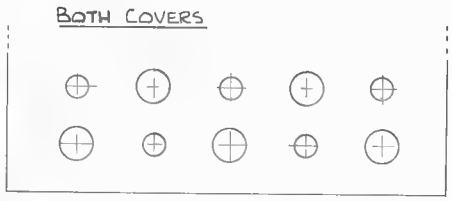
Several variations on this modification exist. One operator fitted a heat sink, another an aluminium plate which extended some distance above and below the covers, while a third obtained a piece of aluminium tubing, 60mm x 50mm x 146mm and turned it into a double cooling fin.

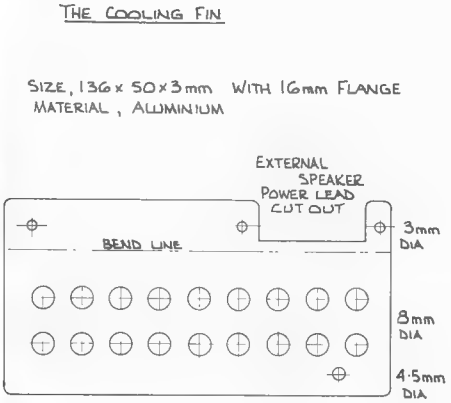






VENTILATION





Do not forget to cement as well as bolt the fins or heat sinks into position.

The photographs give a reasonable indication of these modifications, and operators will no doubt use their ingenuity with material they may have on hand.

Before reassembly, it is beneficial to peak C141 on an offset frequency near the band centre, and also to solder XL801, on the FM321, into circuit, as this ensures less likelihood of the transceiver dropping out when in repeater mode.

For further information the writer may be contacted on the morning net via VK2RUS, the afternoon net via VK2RUG, or by letter.

AR

QSP

HUNTING PIRATES

An article by Mimmo Martinucci I5WWW in Radio Rivista of Oct. '82 lists the number of pirates by countries for the period Jan.-Dec. 1980 on *ten metres only*. The information came from the monitoring system of DARC in West Germany.

A total of 840 pirate stations were intercepted, 709 identified by country of origin, and 131 not identified.

The top five were Brazil with 264 (37.2% of 709), Italy 94, Spain 80, West Germany 36 and U.S.A. 30. Even the U.S.S.R. had 4, followed by U.K., Japan and five other countries 3 each, and Australia, together with 12 other countries, one each.

Translated by Jack VK3AXQ

AR

"THE COMPUTER CONTROLLED CAR"

Not only must we be very much aware of the possible interference problems caused by the inadequacies in home electronics and entertainment products — these present more of a frustration than a danger. We must be even more cautious in respect of the ever increasing use of 'computer style electronics' by vehicle manufacturers.

The erroneous operation of a low immunity factor fuel gauge caused by the presence of a correctly operating radio transmitter is little more than a nuisance.

Disturbance to an electronic braking system could be considered a more pressing problem!

It is interesting to see that even the automobile industry has been programmed to consider amateurs and amateur equipment to be inferior to commercial operators and equipment used by commercial stations, especially in respect to interference.

Subaru of America, Inc. recommends that, *"Electrical transmission devices (CBs, HAMs, Garage door openers, etc.) not be installed on 1982 Subaru vehicles, since such installation may interfere with the ECC system and possibly result in erratic driveability."*

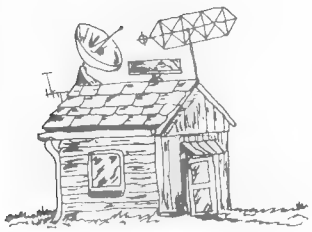
If such a device is installed, care should be taken to route the antenna lead as far as possible from the ECM and ECM harness. Shielding the antenna may also help to cut down on interference. However, these procedures are not guaranteed to correct any interference problems.

The term ECC refers to the Electronically Controlled Carburettor, and the term ECM refers to the Electronic Control Module.

The interference, if any, is generated by the close proximity of the transmission device's cables to the cables of the ECC system and ECM. There would be no interference caused by large commercial transmitters (radio, TV, microwave transmitters, etc)."

AR

PLEASE HELP WITH INTRUDER WATCHING



HOW'S DX

Ken McLachlan VK3AH
Box 39 Mooroolbark Vic. 3138

The Christmas surprise package announced by the Minister for Communications as regards the release of the two WARC Bands, 18 and 24 MHz and the additional bandwidths to the 160, 80 and 40 metre bands will allow greater flexibility to the DXer and for the experimenter, new antennae to erect that may be "tweeked" to perfection.

DXer or not, one would have to be impressed with the extra amount of spectrum that has been made available for amateur use and it is hoped that these privileges are used and not abused. With sensible use the three WARC bands, though contacts made on them will NOT BE VALID for DXCC, should provide some interesting propagation through to the next sunspot maxima.

Unfortunately 10 MHz has not taken on, some excuses being that "I will not get interested in it until the other bands are allocated". That excuse no longer exists, nor does the argument of suitable antennas if you have equipment that will transmit on these frequencies. The dipole is effective, cheap and simple to erect.

Transverters, from junk box parts can be designed, built and coupled to the existing transmission equipment. Who is going to be the first experimenter to submit a suitable WARC band transverter for the perusal of the Technical Editors for printing in AR?

It is predicted that the economic climate of the "80s" will alter the trend of equipment for present and future amateurs. The "black box" will by no means disappear but more "homebrewing" will be anticipated. Also new and larger projects will be undertaken and there will be a major swing back to low power and CW operating habits.

The "budding" short wave listener or amateur should not be deterred from becoming active and getting on the air, as the designs of simple receivers and CW transmitters are available. One such receiver that will provide more than adequate coverage and service to the newcomers and old timers alike is the SQUARE ONE Receiver, the design of which commenced in AR last month. All parts are locally available and minimal test equipment is required to "tweek" it to optimum performance. This positive approach is a credit to the designer.

Dipoles are easily constructed and the ever popular and effective G5RV antenna, as described in detail in December 1982 "AR" will not break the family budget. Will you join the trend and boast *"Using all home brew equipment at this QTH OM"* in 1983?

New operators are Ray Clarke VK0RC, Eric Endacott VK0RE and Adrian Smith VK0AS. QSLs to John VK3DJV QTHR.

OTHER ANTARCTIC OPERATORS

Three other Antarctic signals should be heard this winter from the operators pictured. They will be at their respective sites until November this year.

MACQUARIE ISLAND

Peter, VK0AP, seems to be settling in and has erected the VHF antenna on six metres. Many VK3 operators added a new country to their list when Peter's manned keyer was heard in mid December. As can be imagined, after no six metre activity from the island for nearly a decade, he was much in demand. One particular VK3 still couldn't believe it until he held the card in his hand. Peter hopes to be active on the HF frequencies as the winter months approach.

WILLIS ISLAND

The new operator at Willis Island is John, VK9ZJ who is on the HF bands until June. The "permanent" Willis Island QSL Manager seems to be Gill, VK6YL, who has again taken on this chore for John's tour of duty.

ANZA NET APPEAL

Can you help? This is the question asked by Percy, VK3PA. Percy, who has nurtured this net for in the vicinity of a decade. finds, due to the ill health of his XYL Linda, that he cannot devote as much time to act as controller as he has done in the past. The net presently meets on 21.204 MHz daily at 05.00 UTC and any assistance from someone with some spare time would be appreciated. Further details from Percy, VK3PA when he is on the frequency or by writing to Percy at QTHR. To Linda, wishes for a speedy recovery are extended from DXers worldwide.

SPOT NEWS

ETHIOPIA

From reports received it appears that operations from this country have been suspended, including the Police Club Radio Station, by the National Security Agency. It is believed that a number of amateurs are working towards having this decision by the NSA reversed.

CHINA

Overseas magazines and DX sheets are reporting CW activity from BY8AA on the low end of 21 MHz. No VK reports are to hand on an BY activity heard for the last couple of months.

Heard Island bound — VK0JS's Cheynes II.

GLOBE TROTTING

Two US amateurs are visiting a number of countries (some much sought after) with their intineries commencing late January 1983.

K4YT will be visiting AP, YI, VU, 4S7, HS, 9M2, XW, 9V, YB0, DU and BY.

K4DDA visits include areas such as JY, A4, A7, A6, A9, 9K, HZ, ST, 4W, SU, and YK.

Good tripping gentlemen and it is hoped that you are able to get on the air from some of these areas and that your call will appear in a few VK log books.

4U1VIC

Reports indicate that this station has now made in excess of 1000 QSO's and QSL's are 100% via the OE Bureau. The operators are using a 14AVQ which is mounted 125 metres above the ground on one of the towers at the Vienna International Centre. Many VK's are looking for this one in case it becomes a new one for DXCC.

TRINIDADE IS

The operation from PY0TA on the 17/18th December was conducted by PY1RR and PY1VOY. Those that missed out, take heart, as these two have left the equipment in situ at the naval Base and will be making a return trip in the next couple of months with the supply boat. QSL's for the CW operation go to PY1BVY and SSB to PY1VOY.

GUANTANAMO BAY

Dick KG4CD, has commenced a one year tour of duty at the base and promises lots of activity. QSL's to PO Box 585, FBPO, Norfolk VA 23593, USA.

3D2XN/XR

This station, that operated out of Rotuma, did not qualify for DXCC country status and will not be allowed as a new country by the ARRL.

NEW BAND ACTIVITY

Derek 9K2BE, now has crystals in his possession which will allow him to operate on the 18 and 24 MHz bands. The antennae for these bands will be dipoles.

PREFIX CHANGES

It is on the cards that there will be further prefix changes with some of the island countries this year. These changes will bring all the newer prefixes into line with the ITU allocations.

CHAFARINAS ISLAND

ED9ICH was active and the QTH does exist. Chafarinas Island is one of a group of islands located about 30 miles ESE of Mellila. The island is under Spanish administration and a serviceable lighthouse is its main attribute. QSL's direct only to EA9JV. It is very unlikely that it will be of much interest to anyone except prefix hunters.

TEN METRES AGAIN

The ten metre band behaved over the Festive season and provided some excellent QSO's into all parts of Europe, Africa and the Middle East. Admittedly the signals were not as strong nor had the staying power of last season but they were there, generally appearing from seemingly "dead' band which wasn't even noisy.

One European told me that he had tried to break a number of VK novice operators speaking amongst themselves on numerous occasions but to no avail. Apparently many VK's have given ten away as on numerous occasions I was told that I was the only VK to be heard which is a pity and embarrassing to be in so much demand.

IMPENDING DX

Unconfirmed reports indicate that PY1OR hopes to visit Trinidade in early February. If he is successful QSL's should be routed via PY1VOY.

Another unconfirmed report is that Aves Is will also be activated in the early part of this month. No further details are to hand.

Ship Ahoy for Heard Island — VK0HI's Anaconda II.

ANOTHER DELETION?

A well known and respected VU DXer, in a recent QSO with a VK, was quite adamant that the Andaman and Nicobar Islands (VU7) would become a deleted country this year. If this does occur, he stated that the islands would revert back to the VU2 prefix. Many stations will remember how this country was so ably represented by Fred Burn, VU7ANI until his sudden and untimely death in 1977. Mary Ann WA3HUP still has logs for any one that still requires a card for Fred's operation.

Another country of much interest to the VK operator, is the Laccadives, the same informant believes that there will be NO LEGAL operation from this country in the impending future.

Ladies and gentlemen, not good tidings for those trying to reach or stay on the DX Honour Roll, which maintains its membership of those who have attained a standing of being within the top ten of the maximum current creditable countries.

HEARD ISLAND

At the time of going to press both expeditions were underway and if "Murphy's Law" didn't intervene, should be emanating signals from this world sought after Australian Territory.

Some of the photographs of both the VK0JS and VK0HI vessels and loading preparations that have come to hand, have been suitably captioned and reproduced for the interest of readers.

QSL STATISTICS

One more VK has come to light with some interesting facts correlated from factual observations of his attempt to attain DXCC on the CW mode. It is hoped to reproduce some of these thought provoking figures in this column in an ensuing issue. This amateur's accounting may provoke other amateurs into estimating how much that valued certificate has cost them.

THANKS

Information for these notes has been derived from such magazines as cqDX, DX NEWS, RADCOM, W6GO/K6HHD QSL MANAGER LIST, QTC, QST, WORLD RADIO and amateurs including EA1VG, G3NBC, ON5NT, ZL1AAM and ZL1AMN. Also reports and information from VK2PS VK3's FR, PBA/XSD, YJ, YL, VK5AKH, VK6's HD, IH and NE and L30042. Thanks to one and all.

AR

WORKED ON THE NOVICE BANDS

10 MX
5W1DW (*VK3VU), FO8IW, SM5DYC, SM7LPJ, T32AJ (SM3CXS) and T32AL (*WB7SIC).
15MX
3D2WR, 5W1DW (*VK3VU), 6D5XMT, FG7XL, FO8GF, HB0BHA, HC2DG, HC5RZ, HC8RS, WH6AVA (CW), YV4DDA.

SSB WORKED ON THE EAST COAST

10 MX
8P6JA (LP), DL's, ED9ICH (EA9JV), FC9UC, G's, GJ's, GM's, I6.7 and 8, LA's, SM's, PA0, PA2 and PA3's, RA9AKM, UA's, UB's, UW's, Y22 and Y27's.
15 MX
3V8AA (*IS0LYN), 6W8EX, FB8WG, FW0XN, G5ACI/AA (*YASME), JT1BG.
20 MX
3D2XR (*DK6XR), 5H4KG, 5N3RTF, 5R8AL, 9N1WW, 9N1YOU, 9X5SL, 9Y4RD/SU, A71BJ, C21AF, CE0EVG, CN8AP, EP2TN, EI2AD, FB8WG, FR7ZG, HC8GI, J28DM, JT1BG, VE3DFD/J73.

SSB WORKED ON THE WEST COAST

10 MX
5H3FH, 5N8AL, 5N8ARY, 9Y4RD/SU, A92F, HC2TM, PA0WAY/A6, UK8MAZ, UM8MDX, W4GSM/HC8.
15 MX
3V8AL, CN8CX, HH2CQ, J3AH, GJ3LFJ, HZ1HZ, UF6CR, UJ8JCQ.
20 MX
5N8ARY, 9N38, FY7AN, J20DU, J88AM (YL), PY7A0L, T2GSH, T32AF, V3DX, W5NUT/PJ7.
40MX
9N1WW, J6LB, T32NX.
80MX
UJ8JCQ.

(*) Brackets indicate QSL Managers.

CW SWL-ing with Eric L30042 (Dec. 1982)

28 MHz
DL2EAI, DF6VJ, OH2SN, OK1KPU, ON7LB, PA3CEF, SM3GV, UB5MBP, UQ2GDW, KC7EY, WH6ACS.
21 MHz
BY8AA, DL6HAL, DU6HM, HA5KKK, HL2AAV, HL5GZ, KH6ANM, KL7AF, OH8QD, ZS6BIM.
14 MHz
CN8AD, CT2ES, G5ACI/AA (Abu Ail), EA8BF, FM7CF, FR7CL, HZ1AB, HP1LO, HK0BKX, J20 BL, KP4V, TL8ER, V2AZL, VP2MED, VP9DR, VU2KNS, YV5ANE, ZK1XX, 4Z4BS, 5B4LY, 5H3BH, 6D5XF.
10 MHz
DL6RAO, EA30G, EA8AK, EA9EO, F8RU, G6HL, GM3JDR, HB9AMO, J3AE, JA1XYB, JA4FM, K1JDC/KH6, OE6RH, PA0SFW, VE3BDO, W (all call areas), 5Z4CS.
7 MHz
FK8CE, G4BKU, HA5KDQ, HB9NL, IT9ZGY, LZ2KIM, OE6AM, VS6DO, VU2SUZ, YU2ACF, YU3DKR.
3.5 MHz
UL7QF, VU2WTH.

QSLs received (Dec.)

BV2A, CT2EV, CX1CZ, DH2FAI, F9HR, G2BY (10 MHz), GI3IVJ (3.5 MHz), W4GSM/HC8, J28DP, KG6RT, OH0AL, K5YY/J6, K5YY/J8, UH8EAA, VE1ASJ/SPI, VE1SPI, VP5RFS, W6AM (10 MHz), YB5AES (10 MHz), YJ8IND (3.5 MHz), YJ8TT, YJ8VU (10 MHz), ZK2VU (10 MHz), ZC4YC, 3D2RW, 4S7AJG, 9Y4VU, T2ETA, T32AI.

INTERNATIONAL NEWS

NETHERLANDS — Expansion of teletext broadcasting.

With effect from February 1982, four lines in the field-blanking period of the television signal have been made available for teletext broadcasting in the Netherlands, instead of only two as was previously the case. The addition of lines 20 and 21 has enabled the average time required for access to any of the total of about 200 pages now broadcast cyclically to be halved in comparison with that required if only lines 15 and 16 are used, as was previously the case.

At the same time, several improvements have been made to the range of information broadcast by means of teletext. In particular, new pages of special interest to the hard-of-hearing, to users of inland waterways and to radio amateurs have been added. Research by the Nederlandse Omroep Stichting audience-research departments into the viewers' preferences is continuing, and it is expected that it will be decided, by 1st April 1983, to expand the use of teletext as a regular form of information broadcasting.

See European Broadcasting Union Review for February 1982.

Cordless phones . . . more trouble???

A new interference menace has surfaced in the US according to the US amateur publication 'WESTLINK REPORT'. Two units of so-called "ultra-long-range cordless phones" are being made in the States "for export". One of these, the "Non-Cord DX Model NC 20 M" boasts operation in the two-metre band, from 143 to 147 MHz, complete with a claimed 13 watts and a "twenty-mile range".

Accessories include "gain" antenna and a power amplifier of 25 watts. The second one, with similar "long-range" claims, is something called the Rova/Pro Cordless phone. Both of these units are illegal in Canada and the US.

Canadian regulations permit the operation of very low power devices without licensing if they operate above 510 kHz and if they do not interfere with regular radio services. Typical of these units is one sold by Radio Shack. The units which provide for full duplex working, use a number of channels between 1.6 and 1.8 MHz for the 'base' station and the remote sets transmit on various channels in the 49.8 to 49.9 MHz band. The outputs are so low that users are advised to operate them near the AC lines which can 'piggy-back' the very weak RF out-put. One obvious drawback is that this may introduce an AC hum. Another is that there is no privacy to phone conversations using these units. A third problem is that if your neighbour is using one and it happens to be on the same channel, one or the other of you will have to take the units back and exchange them for a different frequency pair.

These devices operate on a secondary use basis and licensed services, such as the Amateur Service, have priority in use and in any cases of interference.

(From: 'The Canadian Amateur' Oct. 82)

TWO-TONE OSCILLATOR

Con Murphy VK6PM

RMB 237 Via Collie 6225

Many circuits for two-tone oscillators using ICs have appeared, so this is not anything new. However the use of transistors enables the home brewer to construct such small projects with less difficulty.

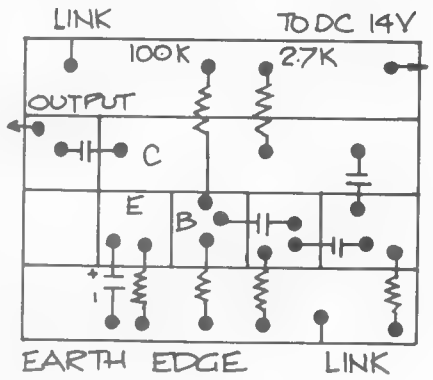


Fig 1: Board Layout

All resistors ½ W
All Caps Ceramic 25vw
All 2 Electro Caps 25vw
TRs BC 548A

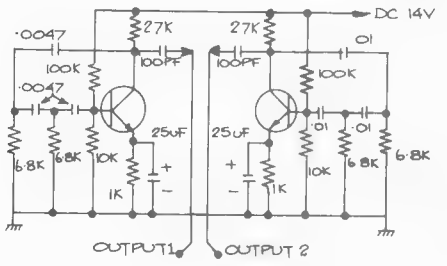


Fig 2: Circuit

4—6.8k resistors
2—1k resistors
2—100k resistors
2—10k resistors
2—2.7k resistors
3—.01 Disc Cer
3—.0047 Disc Cer or .005
2—.100 pf Cer
2—.25 uF 25vw Electro
2—BC548A TRs

The two-tone oscillator, as shown, is constructed on a piece of double-sided board approx. 2 inches (50 mm) square. It may be placed inside an FRG7 receiver or other equipment. The output can be taken to the phone patch socket on any transceiver and as the coupling is light the connecting cord may be left permanently in place. To use it, switch on the power and press the PTT button. Adjust level with the transceiver microphone gain control.

The piece of double-sided board is marked off as shown. Each side is marked as a mirror of the other so that identical components are mounted back to back. Each side generates one tone, the two coming together at the output pads. However do not connect them together until tests show each to be operating.

All components are soldered direct on to the pads, and component leads are cut short so that resistors and capacitors stand about ¼ inch above the board.

TESTING

To test the unit, apply power and bring one output lead at a time to the top of the volume control pot in a receiver, when the tone should be heard from the speaker. The two outputs may then be joined together and checked in the same way.

To adjust for equal output the 100pF coupling capacitors may be altered, e.g. one may be 100pF and the other say 82pF if found necessary.

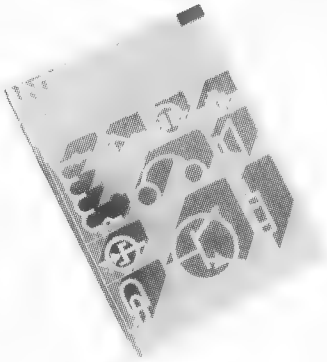
I have an FRG7 which has become the home of small units like this, as there is plenty of unused space available inside.

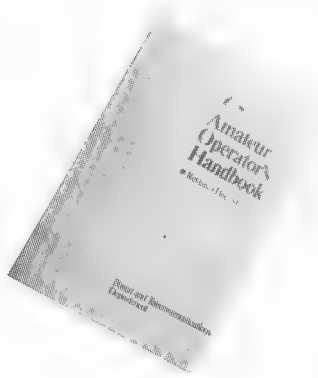
Power to operate the unit can be taken from the FRG7, controlled by a small switch mounted on the rear panel. Better still, if you have made the "Frog Remote", a 3 pole 3 way rotary switch can be fitted in lieu of the fine tune and the extra positions used thus:

Position 1 Receiver only
Position 2 Double unit for FROG REMOTE
Position 3 Two-tone oscillator

The unit can be mounted inside the FRG7 or wherever space is available in other equipment.

* See FROG REMOTE in December **AR** page 29.





These are just a few of the great books now available from MAGPUBS or your Division.

CONTESTS

Reg Dwyer VK1BR
Federal Contest Manager
PO Box 236, Jamison, ACT 2614.

FEBRUARY 1983 CONTEST CALENDAR

5-6	*RSGB 7 MHz Phone Test*
12-13	*NZART National Field Day*
12-13	*John Moyle National Field Day*
12-13	*QCWA CW QSO Party*
12-13	*Dutch PACC Test*
12-13	*YL/OM Phone Test*
19-20	*ARRL CW DX Test*
19-20	*YL ISSB Phone Party*
26	*73 RTTY Test*
25-27	*CQ WW 160 Metre Phone*
26-27	*YL/OM CW Test*
26-27	*French Phone Test*
26-27	*RSGB 7 MHz CW Test*

MARCH

5-6	*ARRL DX Phone Test*
12-13	*QCWA Phone QSO Party*
12-13	*YL/ISSB CW QSO Party*
19-20	*Bermuda Test*
19-20	*G QRP Day*
26-27	*CQ WW WPX SSB Test*

APRIL

9-10	*CARF Commonwealth SSB Test*
16-17	*Polish Phone Test*

ADDENDUM AND CORRECTIONS TO 1982 REMEMBRANCE DAY CONTEST RESULTS

SECTION B VK3

Full call winner VK3AEW with 149 points. Full call listed as VK6PC corrected to read VK6PF plus 19 points for CW entry.

THE 1982 NOVICE CONTEST

Congratulations to the winners of the 1982 Novice Contest.

The trophy winner is VK4VIK, Mr R. Chalmers of Cairns. Very well done and congratulations.

The winners of section certificates are denoted by + and various 'excellent effort' certificates will be sent to other participants.

The contest was pretty poor this year, mainly due to the very poor propogation and to the almost total lack of interest by the amateurs.

This was the first year of the 10 WPM maximum speed to encourage the use of CW and as you can see from the result, the response was almost nil.

The deliberate restraint shown by Ivor VK3XB will allow the novice trophy to be re-allocated a new home for the next year, however there will be some fierce competition for its temporary ownership in 1983, so a big effort will be required by everyone in the next contest.

NOVICE PHONE

CALL SIGN	POINTS
VK4VIK	1146+
VK3KHI	934
VK3NLO	864
VK3PBA	723
VK4NWH	696
VK5NOD	653
VK5NWS	594
VK7NAH	456
VK2VBY	357
VK5NSI	301
VK2VNV	277
VK4VWH	248
VK2NKN	220
VK2KEB	126
VK3PNS	112
VK3VYH	101
VK1NEJ	52
VK4NIJ	26

NOVICE CW

CALL SIGN	POINTS
VK4NRZ	99+
VK3NZO	98
VK3VYH	7
VK4VIK	6

FULL CALL PHONE

CALL SIGN	POINTS
VK3WP	649+
VK3DAK	581
VK5QX	457
VK2BQS	381
ZL1IM	336
VK5GZ	298
VK1LF	247
VK5DI	182
VK4AVR	98
VK3XB	87
VK7FD	86
VK3BKU	60
VK3KS	44

FULL CALL CW

CALL SIGN	POINTS
VK3AEW	131+
VK3BKU	100
VK3WP	68
VK3XB	49
VK5QX	40
VK5GZ	38

CLUB PHONE

CALL SIGN	POINTS
VK3DOA	791+
VK8AR	264
VK4WIC	209
VK2AOA	197

CLUB CW

CALL SIGN	POINTS
VK2AOA	24+

LISTENER PHONE

CALL SIGN	POINTS
L20475	694+

LISTENER CW

CALL SIGN	POINTS
L30042	120+

AR

COMMONWEALTH CONTEST 1983 (BERU)

From 1200 UTC Saturday 12th March to 1200 UTC Sunday 13th March 1983.

MODE

CW (A1) only in the 3.5, 7, 14, 21 and 28 MHz bands. Call is CQ BERU. The Commonwealth contest is a single operator, single transmitter event.

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas as listed below.

A contest exchange consists of RST plus a three figure serial number commencing with 001 and increasing by one for each successive contact throughout the contest, irrespective of band in use. Serial numbers sent from non-competing stations must be recorded.

SCORING

Five points for each contest exchange: Bonus of twenty points for each of the first, second, and third contact in each call area as listed, on each band. Contacts with one's own call area do not count at all. Note that G, GW, GD etc. are counted as one area.

LOGS

Separate logs are required for each band showing columns:

1. Date and time UTC.
2. Station worked.
3. RST/Serial number sent.
4. RST/Serial number received.
5. Band.
6. Leave blank (for checking).
7. Contact points claimed.
8. Bonus points claimed.

Separate band totals should be added together and the total claimed score entered on a cover sheet giving particulars of station, QTH, equipment, power, antenna and a declaration that the rules and spirit of the contest have been observed.

It is important that logs are carefully checked for duplicate contacts. Unmarked duplicate contacts for which points have been claimed will be heavily penalised, and logs containing in excess of five will be disqualified.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but details of contacts on other bands should be submitted for checking purposes only.

Entries should be addressed by AIR MAIL to: D J Andrews G3MXJ, 18 Downsview Crescent, Uckfield, East Sussex TN22IUB, England.

Closing date: 16th May 1983.

All entries become the property of the RSGB. In the event of any dispute the ruling of the Council of the RSGB shall be final.

COMMONWEALTH CALL AREAS

The following call areas are recognised for the purposes of scoring in the 1983 Commonwealth Contest:

A2 Botswana, A3 Tonga Is., A5 Bhutan, C2 Nauru, C5 Gambia, C6 Bahamas, G/GB/GD/GI/GJ/GM/GU/GW, H4 Solomon Is. J3 Grenada, J6 St Lucia, J7 Dominica, J8 St Vincent, P2 Papua New Guinea, S2 Bangladesh, S7 Seychelles, T2 Tuvalu, T3 Kiribati, V2 Antigua and Barbuda, V3 Belize, VE1, VE1 Sable Is., VE1 St Paul Is VE2, VE3, VE4, VE5, VE6, VE7, VE8, VK1, VK2, VK2 Lord Howe Is., VK3, VK4, VK5, VK6, VK7, VK8, VK9 Christmas Is., VK9 Cocos (Keeling) Is., VK9 Norfolk Is., VK9 Willis Is., VK0 Heard Is., VK0 Macquarie Is

VK0/VP8/ZL5 Antarctica*, VO.

VP2E Anguilla, VP2K St Kitts Nevis, VP2M Montserrat, VP2V British Virgin Is., VP5 Turks and Caicos, VP8 Falkland Is., VP8 S. Georgia, VP8 S. Orkney Is., VP8 S. Sandwich Is., VP8 S. Shetland Is., VP9, VQ9 Chagos, VR1 British Phoenix Is., VR6, VS5, VS6, VU India, VU Laccadive Is., VU Andaman & Nicobar Is. VY1 Yukon, YJ

Z2, ZB2, ZC4/5B4, ZD7, ZD8, ZD9, ZF, ZK1 Cook Is., ZK1 Manihiki, ZK2 Niue, ZL1, ZL2, ZL3, ZL4, ZL Auckland and

Campbell Is., ZL Chatham Is., ZL Kermadec Is., ZM7.
3B6/3B7 Agalega and St Brandon, 3B8 Mauritius, 3B9 Rodrigjez Is , 3D2 Fiji, 3D6 Swaziland.
4S7 5H3, 5N, 5W Samoa, 5X5, 5Z4, 6Y5, 7P8, 7Q7, 8P, 8R
9G1 9H, 9J2, 9L1, 9M2, W. Malaysia, 9M6/9M8 E. Malaysia, 9V1, 9Y4
*All calls operated from Commonwealth controlled areas of the Antarctic (VK0, VP8, ZL5, etc.) count as one call area

AUSTRALIAN AWARDS

1. An individual award to the highest VK scorer — a gold medallion.
2. A State Team award — four silver medallions to the state team of four which achieves the highest aggregate score. If the "individual" winner is a member of this team, he will receive the gold medallion instead of the silver one.
3. An award to the middle placing among VK entrants i.e. to, say the 22nd placing among 43 or 44 entrants — a bronze medallion.

THE RAVIN

From QUA WJRA (West Jersey Radio Ass'n)

THE RTTYERS NIGHTMARE

One upon a midnight dreary, as I labored, weak and weary
O'er a battered Model 15 purchased at the surplus store —
While I nodded, nearly napping, suddenly there came a tapping
Of the armature a-rapping, rapping at the magnet's core.
"This is receiver noise", I muttered. "Pulsing in my magnet's core —
Only this and nothing more."

Ah, distinctly I remembered it was in the bleak December;
And the main shaft's driven member lay in fragments on the floor.
RTTY contest was tomorrow; vainly had I sought to borrow
From this junk surcease of sorrow, sorrow for my Sweepstake score —
Working rare and radiant stations to upgrade my Sweepstake score —
Zeroed here for evermore.

Now unto my TU turning, all my soul within me burning,
Soon again I heard a tapping somewhat louder than before.
"Surely", said I, "Surely that is signal at my crystal lattice;
Let me see, then, what that is, and this mystery explore.
Plug the speaker in a moment and this mystery explore.
'Tis the RTTY I adore!"

I inserted one connector, pow'ring up the cross inspector.
There appeared a tape-sent signal which did make my heartbeat soar!
Not the least QRM frayed it, not one moment stopped or stayed it;
Pausing just for Car Ret/Line Feed, it ran RY's by the score —
Like a little kitten purring, running RY's by the score.
My trained ears these sounds adore.

Then the cross on scope face twitching set my fingertips to itching
To attempt to print the characters this warbling held in store.
Now thy works are oiled and greasy, to print this should be quite easy,
Now upon that paper sleazy print the RY's I adore.
On that yellow surplus paper type the RY's I adore!

Typed the printer, "464".
Much I marvelled this ungainly old machine to type so plainly,
Though the alternating figures quite hint of trouble bore.
For we cannot help agreeing that, the typebar carriage being
Shifted upwards, I was seeing in rotation 6 and 4 —
The upper case of RY, alternating 6 and 4.
Only this and nothing more.

But the carriage, sitting lonely on the greasy rails, typed only
These two numbers, which was all the flying typebars did outpour.
Nothing other than it uttered, as the printing bail it fluttered —
Till I scarcely more than muttered, "It needs run a little more".
Till the oil and grease have worked in, then assuredly no more
Shall it type that "464".

Then, methought, the air drew denser, perfumed by my oil can's censer,
Pumped until the vicious fluid trickled on the pock-marked floor.
"Oil", I cried, "A friend has sent me, this repairman he hath lent thee
Respite — respite and repent thee from this ill I so deplore.
Soak, O soak this magic liquid and type upper case no more!"
Typed the printer, "464".

"Rubbish!" said I, "Thing of evil! Rubbish still, designed by devil!
Whether Bell hath sent, or Western Union tossed thee here ashore,
By a legal waiver-granted, with the sixth vane firmly canted,
On this shack my horror haunted — Tell me truly, I implore —
Is there — is there sense in teletype — tell me — tell me, I implore!"
Typed the printer, "464".

But the carriage, never shifting, still is drifting
O'er the fourteenth roll of paper it has gobbled to the core.
To attempt to break its fetters, I've worn out the key marked "LTRS",
And by now the Sweepstake-getters have run up an awesome score.
And my spirits from that pile of paper snaking on the floor
Shall be lifted nevermore!

Author unknown

From ARNS Bulletin, Aug , 82
AR

COMMERCIAL CHATTER

ICOM OPENS AUSTRALIAN OFFICE

Icom Incorporated of Japan, announces the opening of its Australian office as part of its international expansion.

Icom Australia will not sell direct to amateurs, but rather, through a number of dealers in Australia. Vicom International, the company which has established the Icom name in Australia over a period of ten years will continue to be a dealer, selling from its premises at 57 City Road, South Melbourne.

Mr Kiyoshi Fukushima will manage the Australian operation. He is well placed to take this position, having worked for several years as the Service Manager at Vicom, where he helped set the existing high standards for Icom service in Australia.

Icom Australia will ensure that customers do not need to wait long periods for spare parts or new models of transceivers. As an Icom office, it will receive special priority in the receipt of equipment from its factory in Japan.

AR

FREE LITERATURE

New Fluke 1982/1983 catalogue is available from Elmeasco Instruments.

This catalogue features all equipment manufactured by Fluke Manufacturing Inc. — a well-known instrument supplier.

All products are organised into groups by function and performance together with their relevant specifications.

Readers may receive their copy by contacting any of the Elmeasco offices, or for more information please contact Bert Kleverlaan on (02) 736 2888.

AR

SIX MILLION DOLLAR CONTRACT AWARD FOR 1200-MR RECEIVERS AND 3200-PC COMBINERS.

Microdyne Corporation are pleased to announce their recent six million dollar plus contract award, to supply White Sands Missile Range with 152 1200-MR receivers and 157 3200-PC Diversity Combiners over the next five years. This is the second largest contract for this type of equipment awarded by a major US missile range since their initial contract with Vandenberg AFB.

Major features of the 1200-MR telemetry receiver include microprocessor controlled for local control or remote control using IEEE-488 or optional RS-232 interface, non-volatile memories used for last command and storage of addressable memory, keyboard entry for local control, synthesized control of local oscillators phase locked to a 5 MHz reference for stability without the use of crystals, voltage controlled stripline RF tuners, up to seven internal second IF filters to 10 MHz bandwidth with wider bandwidths available as options, 12 video filter positions standard (10 video filters plus by-pass and special bandwidth), low power liquid crystal digital readouts indicate RF frequency, IF bandwidth, video bandwidth, video level/gain, AGC time constant, deviation and relative second LO tuning. LED indicators are used for signal level, tuning and mode status, addressable memory (up to five complete receiver setups can be stored for instant recall), master / slave capability (two receivers can be slaved together to form the equivalent of a dual channel receiver. Local oscillators maintained in a coherent mode by phase locking to a 5 MHz standard supplied by the master receiver or common external source.)

For further information, please contact Scalar Distributors Pty Ltd, 20 Shelley Ave., Kilsyth, Vic. 3137. Phone: (03) 725 9677.

ICOM BRINGS THE WORLD

Now ICOM is directly represented in Australia with the establishment of its own company, ICOM AUSTRALIA Pty Ltd.

The Australian Amateur has known ICOM for many years as the leader in 2 metre and 6 metre transceivers, more recently for the State of The Art multi-band units such as the IC-740 with full WARC facilities.

You will soon know ICOM AUSTRALIA for the best in Australian service.

❶ MINICOM **IC-25A** A small 2 metres package with 25 watt punch, IC-25A is a full featured FM transceiver for the s band transceiver with General Coverage Receiver. Multi mode operation includes CW AM SSB RTTY. ❹ **IC-740** H metre and 70 cm multi mode transceivers providing many base station features in a mobile package. ❻ **IC-730** Go any ❾ **IC-R70** General coverage at its best. 100 kHz to 30 MHz commercial grade receiver. ❿ **IC-AT500** HF fully automa most successful hand-held on the market.

ICOM AUSTRALIA PTY. LTD. **7 DUKE ST,**

TO AUSTRALIA ICOM

ICOM AUSTRALIA Pty Ltd and its authorised dealers can now offer you factory backed technical and service facilities here in Australia.

All dealers and prospective dealers, please feel free to call on us soon and talk with The Team that understands Amateur Radio.

Discover a new deal with ICOM AUSTRALIA

he space conscientious operator. ❷ MINICOM **IC-45A** Full featured 70 cm 10 watt F.M transceiver. ❸ **IC-720A** HF all 0 HF all band SSB CW RTTY transceiver with extensive versatility for the serious operator. ❺ ❽ **IC-290H/IC490A** 2 anywhere HF rig for everyone's pocket. ❼ **IC-2KL** Solid state Linear Amplifier 500 W output power SSB CW RTTY. matic antenna tuner 1 kW PEP. ⓫ ⓬ **IC-2A IC-4E** ICOM's reliable, field-proven IC-2A IC-4E series has become the

T, WINDSOR, VIC. TELEPHONE 529 7582 51 2284

AR SHOWCASE

GRAY LINE RADIO GLOBE

This globe of the world, which measures more than thirteen inches in diameter, is a useful tool for the amateur radio DXer, particularly for the lower frequencies.

The globe has very detailed printing which includes amateur radio prefixes, zones, great circle bearings with given distances, most standard frequency and time signal station callsigns and locations, and 10 m beacon callsigns and locations. In addition it is cleverly illuminated from within to accurately display the daylight and darkness zones.

The inclination of the earth's axis in relation to the sun can be set in increments of one day by the aid of a day to day calendar on the globe stand. Also, there is a time graduated ring along the equator to enable the setting of the position of the globe for any time of the day in increments which can easily be interpolated down to an accuracy of five minutes for any spot in the world.

Another feature is the ability to determine the sunrise and sunset times for any given location with an accuracy of ± 3 minutes, and to clearly see the sunrise/sunset path for the whole world.

The quality of construction appears to be sound and although, at the price, it may not be for everyone, it would make a useful tool and attractive addition to the shack of the DXer who "has everything".

The globe is available only from Realto International, 26 Karoonda Road, Booragoon 6154, Western Australia.

AR

WAVEGUIDE PROGRAMMABLE ROTARY-VANE ATTENUATORS

Programmable broadband rotary-vane attenuators and coaxial piston attenuators, complemented by micro-processor-based control devices, are offered for automatic test equipment and systems applications by a British firm, Flann Microwave.

The precision rotary-vane attenuators are available in all standard waveguide sizes from 3.94 GHz to 140 GHz and in 14 frequency bands. All versions have a voltage standby wave ratio better than 1.15 and an accuracy of 1 per cent or 0.1 dB, whichever is greater, from 0 to 60 dB. Resettability is stated to be better than 0.1 dB at 60 dB and to improve considerably over the lower attenuation ranges. The devices can be operated at ambients of 5-35°C.

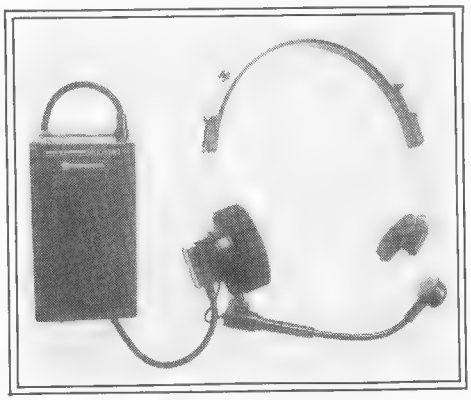
There is a choice of four options for each of the 14 frequency bands. Devices bearing the suffix 01 reach their preset attenuation in the 0-60 dB range in 10 sec. The 02 types are similar in all respects but include a helical drum scale with manual control. Resembling the 01 devices in most respects, the 03 types differ in reading preset attenuation in only 3 sec. Finally, the 04 attenuators have a range up to 85 dB (their accuracy above 60 dB is 2 per cent) and reach preset values in 6 sec.

The coaxial piston attenuators are highly accurate instruments with a low insertion loss. They are fully screened to prevent leakage and provide good linearity to low attenuation levels.

The 17 types between them cover the 1-12 GHz band and have a relative attenuation range of 0-120 dB, traversing the full range in about 3½ sec. Both settability and resettability are in 0.1-dB increments, with an accuracy for most models of better than 2 per cent in the linear region (that is, 20-120 dB). Insertion loss is generally less than 5 dB at the 0-dB setting.

Micro-processor-based controllers suitable for both types of attenuator are equipped with an IEE-1975 interface for remote control using ASC11 code plus alphanumeric control setting. Pushbuttons are provided for manual control. The three models of operation comprise set attenuation to any dB value within the range; and either increase or decrease of the attenuation by any dB value in the range. Any operational mode is selected by pushbutton. Controllers are available for driving one or two microwave units, and are normally designed for operation from 110-V or 240-V AC supplies. For further information, please contact Scalar Distributors Pty Ltd, 20 Shelley Ave, Kilsyth, Vic 3137. Phone (03) 725 9677.

AR



TALKMAN HANDS-FREE TRANSCEIVER WITH NOISE CANCELLING MIC

Now even when operating in a situation where a high level of background noise is experienced, such as you would normally encounter in many industrial applications, the latest version of Standard's C-900 Talkman allows the operator's voice to come across clearly and concisely.

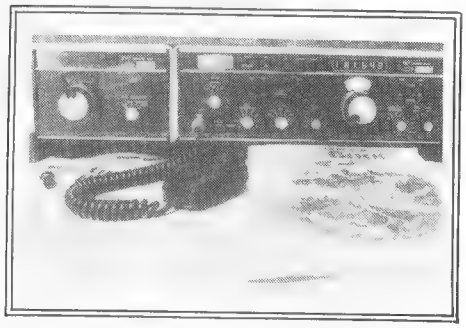
To achieve this, a unique built-in, noise cancelling microphone accepts only its operator's voice while rejecting any background noise. Beside allowing clear communication this system also prevents transmitter lock-up which would normally render a voice operated transceiver (VOX), unusable when background noise is present.

Unique in currently being the only unit of its type and price available in Australia with a noise cancelling microphone, this unit is ideally suited for many hundreds of communications

applications. They include any situation where a range of up to 1 km is required by operators who need their hands free to perform other tasks.

A range of options is also available, including rechargable Ni-Cad batteries and battery charger.

For further information on the Talkman Headset communicator contact the Australian distributors: GFS Electronic Imports, 15 McKeon Road (PO Box 97) Mitcham, Victoria, 3132. Phone: (03) 873 3939; or one of their interstate outlets.



ATTENTION DRAKE TR7 OWNERS

It is not often amateurs are offered something for cost price — Ian Hunt VK5QX, a well known amateur in WIA Federal and South Australian circles has produced a substitute PC board, fully wired and tested to allow the Drake TR7 to operate on the new WARC bands, together with receive operation from 1.5 MHz down through VLF.

The board is designed to simply plug in to the AUX 7 slot in the transceiver. No adjustments are necessary.

The PC board comes complete with instructions, and costs just $25.00. Enquiries to Ian Hunt VK5QX, 8 Dexter Drive, Salisbury East 5109 or phone (08) 259 6418 (Bus. Hrs).

AR

"A CALL TO ALL AMATEURS" and others

Are you an active member, the kind that would be missed.

Or are you just contented that your name is on the list.

Do you attend the meetings and mingle with the flock.

Or stay at home in comfort to criticise and knock.

Do you take an active part to help the work along.

Or are you satisfied — just simply to belong.

Think it over members — you know right from wrong.

Are you an active member or do you just belong.

Clem Brown

AR

EDUCATION NOTES

Brenda Edmonds VK3KT
Federal Education Officer
56 Baden Powell Drive, Frankston, Vic. 3199.

I have just returned from a somewhat exhausting few days with the WICEN team handling communications for the Murray River Marathon. Discussions there with other team members brought up several points relating to education of the newly licensed amateur with regard to operating techniques.

During the course of this exercise, operators may be required to:

— set up a portable station, HF, VHF or both, using emergency power source in a location which has not previously been investigated;
— establish and maintain communications under difficult propagation conditions;
— transmit and receive messages accurately and efficiently;
— operate or maintain a listening watch for long periods under unpleasant environmental conditions, high local noise or interference, heat, wind, rain, flies, or mosquitoes;
— make adjustments or temporary repairs to equipment under said unpleasant conditions;
— maintain radio silence except when handling traffic.

Practical operating skills such as these are not included in any exam syllabus or tested in any licence exam. So where does a newcomer go to learn them? Naturally, many licensees do not see any need to learn them. They have no desire to operate away from the comfort and convenience of their own shacks or cars, and accuracy of transmission or reception is not terribly important so long as call signs and QSL information are correct.

I wonder how many of us really listen to what the other operator is saying. Does it really matter if he has been operating for thirty-five or thirty-nine years, or lives seven or eleven miles from the nearest town? How many of us will attempt to establish or maintain contact once conditions deteriorate? Do we speak clearly and set the mike gain to give the listener the best possible chance of copying?

These are all operating skills that can and should be practised. A new operator will learn them more rapidly if the established operators are prepared to give guidance and assistance when it is needed or requested.

Some of us will probably never be called on to operate in an emergency situation, but we are ranked as a 'SERVICE' and we do use our ability to provide communications in emergencies as a justification for many of our requests for privileges, so it is worth giving the occasional thought to how well you would cope if called on unexpectedly.

Now that we are into the new year I expect that various bodies will be starting to think about starting classes. I would very much appreciate being notified of classes that are arranged so that I can compile a current list. If you think I can help in any way, please say so.

Best of luck to those who are sitting for the February exam. Be prepared for some new questions, READ THE QUESTIONS, and answer the question that is asked.

73 Brenda VK3KT AR

URGENT!

Please let us know of clubs and schools etc. starting theory classes.

Where, when, how much and whom to contact.

Contact Brenda QTHR

EMERGENCY AND DISTRESS CALLS

It is of prime concern to the Wireless Institute of Australia, that there have been several instances lately where distress traffic has been improperly handled by radio amateurs. The reason for this is considered to be the lack of knowledge of the regulations covering distress calls by the amateurs concerned.

Every licensed amateur must be fully aware of the correct procedure in the event of hearing a distress call. The amateur service prides itself on being able to assist where necessary.

As a means of educating amateurs in the correct procedures of handling distress traffic, we have reproduced verbatum the requirements as printed in the Amateur Operators Handbook (revised edition Dec 1978). These requirements were made for a purpose, do not abuse them.

These regulations together with **common sense** will satisfy all of the requirements expected of us.

It is important that the following information be obtained from the person or vessel or vehicle in distress:

Name of person or vessel etc.

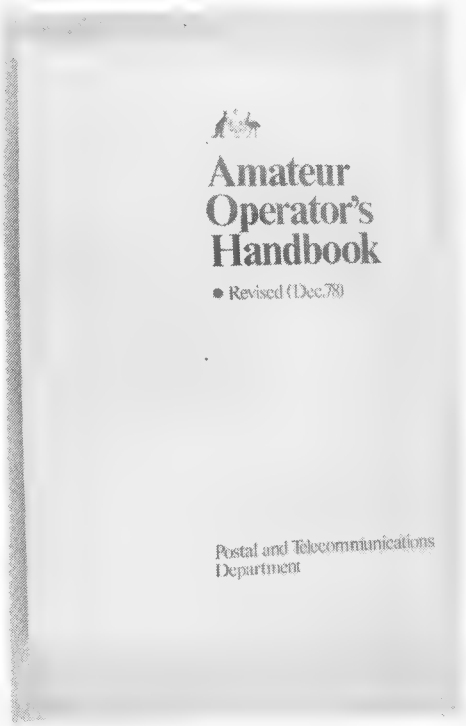
Location, Map reference or Latitude/ Longitude or nearest township.

The nature of distress and the kind of assistance required.

Any other information that may be relevant, such as number of persons in distress.

If you do not have a copy of the regulations book, please send $3.60 plus $1.20 postage to the WIA, PO Box 300, Caulfield South Vic. 3162, or alternatively to your division. **Every licensed amateur is expected to have a copy of the regulations in his/her radio shack.**

VK3UV Editor



DISTRESS PROCEDURE

DISTRESS SIGNALS

7.17 The radiotelegraph distress signal consists of the group ...---... symbolised herein by SOS, transmitted as a single signal in which the dashes are emphasised so as to be distinguished clearly from the dots.

7.18 The radiotelephone distress signal consists of the word MAYDAY pronounced as the French expression 'm'aider'.

7.19 These distress signals indicate that ship, aircraft or other vehicle is threatened by grave and imminent danger and requests immediate assistance.

7.20 The frequency 500 kHz is the international distress frequency for radiotelegraphy. The frequency 8364 kHz is additionally designated for use by survival craft for search and rescue communications.

7.21 The frequency 2182 kHz is the international distress frequency for radiotelephony. The frequencies 4125 and 6215.5 kHz are designated to supplement the frequency 2182 kHz for distress and safety purposes.

7.22 The frequency 156.8 MHz is the international distress, safety and calling frequency for radiotelephony for stations of the maritime mobile service when using frequencies in the authorised bands between 156 MHz and 174 MHz.

DISTRESS CALL AND MESSAGE

7.23 The distress call sent by radiotelegraphy consists of:

- the distress signal SOS sent three times;
- the word DE;
- the call sign of the mobile station in distress, sent three times.

7.24 The distress call sent by radiotelephony consists of:

- the distress signal MAYDAY, spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the mobile station in distress, spoken three times.

7.25 The distress call shall have absolute priority over other transmissions. All stations which hear it shall immediately cease any transmission capable of interfering with the distress traffic and shall continue to listen on the frequency used for the emission of the distress call. Acknowledgement of receipt shall not be given before the distress message which follows a distress call is sent.

7.26 The distress message consists of:

- the distress signal SOS (for radiotelegraphy) or MAYDAY (for radio telephony);
- the name, or other identification, of the mobile station in distress;
- particulars of its position;
- the nature of the distress and the kind of assistance desired;
- any other information which might facilitate the rescue.

DISTRESS TRAFFIC, OBLIGATIONS

7.27 A licensee hearing a distress call must immediately cease all transmissions, continue to listen on the frequency and prepare to record full details of the distress message which follows. The information should be recorded in writing in the station log book and, if possible, by tape recorder.

7.28 A licensee who receives a distress message should defer acknowledgement for a short interval but should continue listening to ascertain whether the message has been received by a station in a better position to render assistance. If the distress message is not acknowledged within a reasonable time, the licensee is obliged to assist.

7.29 He should endeavour to acknowledge receipt of the distress message and then immediately alert and convey details of the distress situation to:

(a) for land-based distress situations, the nearest police station;

(b) for sea-based distress situations, the Australian Coastal Surveillance Centre, Canberra, ACT, telephone Canberra 47 5244 (reverse charges call) or STD (062) 47 5244;
(c) any other appropriate authority; or
(d) if the above proves difficult, an officer of the Regulatory Licensing Section, Postal and Telecommunications Department, in any of the areas listed in Appendix 1.

7.30 The licensee should then resume listening and keep the respective Authority informed of any developments. He should continue to render any assistance practicable until cessation of distress traffic is announced (by means of the operating signals 'QUM' or 'SEELONCE FEENEE'), or he is advised that his assistance is no longer required.

7.31 A licensee hearing or becoming involved in a distress situation is not permitted to pass the text of any messages to anyone other than the above-mentioned authority (see Wireless Telegraphy Regulations 36 (3) in Appendix 2).

7.32 A licensee handling distress messages should in any case advise the Regulatory and Licensing Section of the Department within 24 hours of the conclusion of the distress working. If required, the station log book and copies of all messages handled must be made available to an officer of the Department.

URGENCY SIGNAL

7.33 Where the transmission of the distress signal and call is not fully justified, the urgency signal may be used. The urgency signal, which comprises in radiotelegraphy the group XXX repeated three times and in radiotelephony the expression PAN PAN repeated three times, is to indicate that a ship has a very urgent message to transmit concerning the safety of the ship or aircraft or the safety of a person. The procedure for transmitting and replying to an urgency call and message shall follow the same lines as prescribed for the distress call and message.

7.34 The urgency signal has priority overall other communication except distress. All stations which hear it shall take care not to interfere with the transmission of the message which follows it.

EMERGENCY POSITION INDICATING RADIO BEACONS (EPIRBs)

7.35 These are small low-powered radio beacons which are usually released when a ship sinks or an aircraft crashes. The beacon transmits a repetitive emergency signal on 121.5 MHz and 243 MHz. These devices do not transmit an identification nor are they capable of speech modulation. Amateur operators should be aware that such a system is in world-wide use.

7.36 Further details are included in the Handbook for Radiotelephone Ship Station Operators, which may be obtained from any of the addresses shown in Appendix 1.

(The appendices as noted above have not been published here due to space requirements, we suggest you refer to your copy of the Amateur Operators Handbook)

— ED

AR

WORLD COMMUNICATIONS YEAR: 1983

PUBLIC RELATIONS

John Hill VK3DKK
Public Relations Co-ordinator

I was really very surprised when I heard some amateurs actively engaged in voluntary work, for the WIA say that we do not need public relations. Well, these members may be very clever in their own field as far as electronics is concerned but, their knowledge of influence of good PR-work certainly leaves a lot to be desired.

In the first place, what is public relations? Well, to put it very simply: informing the public. In other words, creating an image. And . . . any person or organisation creates an image whether we like it or not. Even when breathing out, one can create an image particularly after eating garlic, an image which is not always appreciated by the recipient, and a "ring of confidence" approach would win and influence many more friends.

Now, let us be more positive and apply this to our own hobby. With "communications" being the name of our game and 1983 the World Communications Year, we have excellent reasons for improving our image to the public.

I say "we" because every member must be a PR Officer as from NOW. It is not a matter of a handful of volunteers in divisional or federal circles to go all out. EVERY MEMBER should join in the activities during 1983.

How can you do that?

1. Contact your local division or club and offer your services.
2. Invite non-amateur friends into your shack and explain the many uses of amateur radio.
3. Introduce new members (always have a membership application form handy).
4. Let your friends (non-members) know what the WIA has to offer like: Amateur Radio monthly magazine, beacons, QSL-Bureaux, and don't forget the many successful negotiations with the authorities for extension of frequencies for amateur use. (See elsewhere in this issue for results.)

These are only a few pointers for this month, but I have one request to you all, please write to me and let me know what YOU are doing, and what YOUR CLUB is doing during 1983. Is it going to be "garlic" or "Ring of Confidence" Hi.

AR

COMMENTS ABOUT WCY

"We should realize that inasmuch as we speak on the telephone, use a telex machine, listen to the radio, watch television, fly in an aircraft guided by radar, write a telegram or receive a press wire dispatch, we are immersed in the world of telecommunications."

El Jalisciense, Mexico

"I seriously believe that the overwhelming headlong development of modern technology is such that a person watching say, a moonlanding on television sees no further than the actual landing itself and fails to realize that there is a whole infrastructure — a terribly sensitive and costly one — which is enabling him to see it."

General Caupolican Boisset
Minister of Transport and
Telecommunications in "La
Tercera de la Hora", Santiago
(Chile)

"Politicians and sociologists (have) realized that man is paying dearly for inadequate communication infrastructures and that this inadequacy is acting as a brake on progress in the economic and social sectors."

Electronique, Aarau (Switzerland)

Welcome Bruce, our new monthly RTTY columnist. Bruce is filling a much requested void in our magazine for RTTY enthusiasts and we hope it will also enlighten the many amateurs that have often wondered, but know very little of what RTTY is all about (Ed).

HERE'S RTTY!

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove SA 5112

Most people find RTTY fascinating as they watch the distant station's incoming message print out on their paper or screen. But quite apart from fascination the mode has many advantages that are well worth serious consideration.

RTTY ADVANTAGES

RTTY is superb for exact word messages, as for such, it is much faster and more accurate than phone and slightly better than a very good CW operator. Most RTTY stations either automatically print on paper in normal reception and transmission or if a visual display screen is used can additionally print on paper if required. This means an accurate, easily readable copy is always available with additional carbon copies if needed.

It is often said that RTTY is a form of instant letters as, with no delay at all, what the other chap is typing appears on your paper or screen and you can in like manner make an immediate reply.

Many people like to have pen friends in distant places but RTTY sure beats that idea and avoids high postage costs at the same time

RTTY is a boon for certain disabled amateurs and, in some cases, it is the only mode suited to them. Deaf and near deaf amateurs can operate RTTY without difficulties as signals can be tuned in visually without any sound at all. This can also be handy for those with normal hearing such as when SSB operators come on your frequency to QRM you and start saying many rude things about RTTY.

Those with speech impediments and foreign language accents can communicate very well with RTTY. Some who have had strokes and find they can't use CW because of trembling hands find they can use a typewriter type keyboard quite well.

Using RTTY helps one to spell correctly as when you need to spell everything you say, you get to pondering how words should be spelt. However don't be guided by the other fellow's spelling as it might be worse than yours.

As RTTY can be combined with computer operation it can be a valuable teaching aid in the ever growing field of computer work. It also teaches one to type rapidly and this can be very useful to private people as well as office workers

RTTY has a greater DX range than phone for similar power, I have at times got a perfect print from a signal that had faded so low I could no longer hear it. Although most RTTY is transmitted using normal SSB type transceivers by feeding audio tones into the microphone socket it does not have to be done that way and a very simple transmitter will suffice.

On the HF bands a single stage crystal oscillator transmitter could be used with the RTTY equipment switching a small capacitor on and off across the crystal to give frequency shift. Crystal control is not unreasonable for RTTY as most RTTY activity is centred around a few exact frequencies.

That old AM/CW transmitter gathering dust and spider webs in the corner of the shack could make a fine RTTY transmitter. Home brew RTTY transmitters are an easy project and even offer some advantages over SSB types that don't like continuous audio tones fed into them on transmit.

The 100% duty cycle of RTTY means SSB transceivers must be operated at very low power output but a home brew transmitter using class C stages give better efficiency and more power output for a given tube or transistor

Concluding RTTY advantages, RTTY and similar data transmissions are of rapidly growing importance supplying the modern world's need for fast, accurate communications. Amateurs have previously often led the way in developing new communication techniques and it is in my opinion a great pity so few presently use their skills in improving RTTY and data transmission techniques.

CW ONLY OR TELEGRAPHY ONLY?

The following motion was put to the SA Division of the WIA *"That the South Australian Division of the WIA request the Federal WIA to change the words CW ONLY to TELEGRAPHY ONLY in all future Gentlemen's agreement band plans"*. This was carried and if the Federal body see fit to do this RTTY will benefit greatly from the change.

There are presently some CW operators that are saying RTTY is not CW so should stay out of the CW only portions of the bands. Such will need to revise their ideas if the wording becomes telegraphy only.

THE GREATEST BENEFIT TO THE GREATEST NUMBER?

In order to underline the need to update existing Gentlemen's Agreement Band Plans I made the following statement in a SA Division broadcast 22/8/82. *"If the WIA were to obtain statistics of CW as compared to Phone, say compare the number of CW contacts recorded as compared to the number of Phone contacts in the recent RD Contest I am sure CW would be less than 10% of the total. In other words 10% (or less) of amateur operators using a narrow band width mode have all the HF bands to use and 90% of operators using a medium band width mode are restricted to certain limited portions of these bands on a shared basis. Surely the rule should be the greatest benefit to the greatest number of people"*.

Well as the 1982 RD Contest results were published in the December issue of AR I have been doing some counting to check the accuracy of my statement. I find CW/RTTY contact points compared to Phone contact points indicate twenty five to one in favour of Phone so my 10% for CW should have been say 4%. It certainly IS time that Gentlemen's Agreement Bands Plans were revised.

USING STEREO EQUALIZERS

Stereo equalizers can be very useful at an RTTY station to tailor the frequency response between the receiver and the demodulator.

As each control gives 12dB gain or loss the response can be made to peak at or near the demodulation centre frequency. Twice as much equalizer range can be had by connecting the left and right channels in series (output of one to input of the other).

With this series connection you can get 24dB lift at the desired frequency and by setting all other controls at -12dB you get 24dB loss at all other frequencies. This means the desired frequency range is 48dB higher than all other frequencies outside this range.

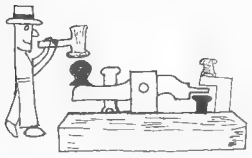
Of course you really need an equalizer with a frequency band control at or near your demodulator centre frequency as if you need to raise two controls to include the desired frequency range the benefits may be somewhat reduced (especially if it is a five band equalizer).

This idea can be useful for CW and even for Phone as it will sometimes be found that hard to understand speech can be equalized and made more readable.

In conclusion if you want advice or help concerning RTTY why not contact one of the following RTTY Clubs? Write to the Secretary of one of the following. — ANARTS PO Box 860 Crows Nest NSW 2065 — Eastern and Mountain Districts Radio Club PO Box 87 Mitcham Vic. 3132 (note not an RTTY club but has many members involved in RTTY) — South East Qld. TT Group PO Box 184 Fortitude Valley Qld. 4006 — SARG 57 Haydown Road, Elizabeth Grove SA 5112 — AARTG 91 Arlunya Ave., Cloverdale WA 6105.

73 from Bruce VK5XI

AR



POUNDING BRASS

Marshall Emm VK5FN
GPO Box 389, Adelaide, SA, 5001

This month's column was intended to be a continuation of the discussion of keying equipment, but it might be better to take this opportunity to answer some of the mail. As I intimated when the column began, I am not an expert CW operator, just an "enthusiast," and as such, feedback from the real experts is always valued. For example, Fred, VK4RF, has written advising me of some of his "pet hates," which are worth passing on because they should be everyone's pet hates!

(a) Long CQ's without signing (as opposed to the standard 3 x 3 call.)
(b) Ending a CQ call with KN (which means "called station only to respond" and is a contradiction of CQ). A CQ should end with AR or AR K.
(c) The "bug" or mechanical key user who sends his dots at 35 WPM and the dashes at 20 WPM (more will be said about this later, in the context of mechanical keys.)

Fred also noted that a lot of operators seem to have trouble with spacing. You don't have to spend a lot of time listening to the "low end" of 80 metres to hear someone running words and letters together. CW sending is a fairly exact science, and **any** sending fault makes it less copyable at the other end.

My thanks to Fred to a new "abbreviation"— apparently a lot of ex-commercial ops use four dashes (————) to represent the letters CH in such words as such, much, touch, etc. This is a new one on me, but I can't recommend its adoption for everyday use.

At the other end of the scale of expertise, Ken, VK2BIW is approaching CW operation from the angle of a complete newcomer, and his questions based on the first two columns have shown me how easy it is to overlook something.

First of all, my "golden rule" for sending speed is in need of revision. As printed, it read "Call at the speed you want to work; answer at the speed of the other station." There would be no point in answering a 20 WPM CQ at 20 WPM if you can only copy at 12 WPM! The revised standard version is "Call at the speed you want to work; answer at the speed of the other station if he is slower than you, or at your own speed if he is faster."

Ken also pointed out that I neglected to describe the use of "overlining" for procedural symbols. When two or more letters are written with a line over them (eg SK, SOS), they represent a special symbol which sounds like the written letters run together. For example, SK is sent as "···-·-", or S and K run together. In point of fact, SK is sometimes written VA, but SK is the more common usage. Theoretically, SK could be written all sorts of ways, including SNT, but it starts to look ridiculous.

Ken thought a full CQ call and response sequence, with notes on the abbreviations (procedural signs or prosigns) would be of interest, so here goes . . .

CQ CQ CQ DE VK5FN VK5FN VK5FN AR
VK5FN DE VK2BIW VK2BIW VK2BIW KN
R VK2BIW DE VK5FN FB KEN HW U? K

The call is a "Three By Three" call because the CQ and the sending station's callsign are sent three times each. AR, as noted earlier, is the proper way to end a CQ because it is an invitation for any listening station to respond.

When VK2BIW responds to VK5FN, he uses a "One by Three" format because it is safe to assume that VK5FN will recognize his own callsign. The response ends in KN because VK2BIW only wants to hear VK5FN coming back.

I hope the above has cleared matters up for you, and I expect to hear a lot of unfamiliar calls sending CW CQ's on 80 in the next week or so. I'll answer any I hear, and I'm sure Fred will too if he isn't chasing DX.

It's been a pleasure to respond to both of these letters, and I hope I can do more of the same in the future — keep the mail coming! FER NW, 73 ES CU ON 80.

AR

AMATEUR ACHIEVEMENT

Mike Provis VK3KKA

Two Victorians amateurs were involved in the production of a film which recently won a national award as the outstanding audio/visual production for 1982.

Dale VK3DXB, producer, and Chris VK3VYI, sound recordist, worked on "The Sounds of Silence" which was awarded a "Golden Target Award" by the Public Relations Institute of Australia. The award was presented by the Federal Treasurer, John Howard, at a special dinner in Sydney.

Dale said the film took a rather different look at the effects of noise deafness through the eyes of a man who lived with the disability. Produced for the Victorian State Electricity Commission, the film also shows the workings of the SEC's hearing conservation programme. Dale and Chris work in the Public Relations Department of the SEC.

Dale said: "We set out to show how industrial deafness occurs and what the SEC is doing about the problem.

"We told the story through the eyes of one man and his family. We filmed them at home and work and our locations ranged from a power station, to home and to the 90 mile beach, on Victoria's east coast. Two out of the three members of our film crew are amateurs and we're both working on Barry, our cameraman to make it a full crew.

Dale VK3DXB, producer (left) and Barry Woodhouse, cameraman, receive the Golden Target award from Treasurer, John Howard.

AR

AWARDS

Mike Bazley VK6HD
Federal Awards Manager
6 James Road, Kalamunda, WA 6076.

Easter is the time when the Federal Council usually gets together. One of the many items on the agenda is the Federal Award Manager's report. This year I am proposing some changes in our award rules. Could I suggest, if you are interested in the awards programme, that you read these proposed changes and make your point of view known to your federal councillor.

Proposed Award Changes

FOR ALL WIA AWARDS

1. *New rule. All applications for any WIA award must be accompanied by the applicant's address label taken from the latest edition of "Amateur Radio". Note WIA members will still have to enclose sufficient return postage for any QSLs submitted.*
   Explanation of new rule. The Federal Awards Manager does not know whether applicants are WIA members or not. It seems unfair that members dues should be used to subsidise non-members. Most other bodies make a charge for any certificates issued.

2. AMENDMENT, UNDER VERIFICATIONS, RULE 4.1
   Present rule reads: It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
   Proposed amendment: It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence, from the station contacted, showing that two-way contacts have taken place.
   Explanation of amendment. This clears up the point raised by several members, that is, other written evidence could apply to the applicant's log.
3. AMENDMENT UNDER VERIFICATIONS, RULE 4.5
   In addition to the present rule it is proposed that the following be added:
   Every person certifying an award application must sign the following declaration: I have checked the (insert number in words) QSLs submitted by (insert call sign) and certify that the details attached correspond with the verifications inspected by me. Signed...
   Explanation for amendment. Unfortunately there are some cases where the checking is not carried out properly. This year I have had certified applications which included QSLs from DXpeditions which were not active on the dates claimed. Also there have been claims for countries which do not correspond with the callsign used.

PROPOSED DXCC AWARD CHANGE

NEW RULE

1. *Delete rule 3.6 and insert the following: All stations must be contacted from the same DXCC "country".*
   Explanation for the new rule. This would bring us in line with the ARRL award criteria. Further, it seems unfair that a station should be penalised because he is required to change locations, for example, to continue his employment.

Well those are the proposed changes, which I believe should help to clarify a few points, at least I hope so. One further point, which does not involve a rule change, is that stickers should be available for additional countries past one hundred. These stickers could be issued for 150, 200, 225, 250, 275, 300 and then in intervals of 10 countries.

Also it is suggested that single band stickers should be available in the same increments. The different stickers could be distinguished by colour. For example, all band stickers could be red, 3.5 MHz blue, 7 MHz yellow, 14 MHz green, 21 MHz grey and 28 MHz purple. These stickers could apply equally to our Open, CW, and Phone DXCC awards. The cost of these stickers, I suggest, could be met by applicants. I do not know what the cost would be, though I am certain they should not be more than say, 20 cents each.

Further, the design could be the WIA crest with DXCC and the country total below. WHAT DO YOU THINK? Let your views be known.

RUSSIAN PREFIXES

Several members seem to be confused with allocating the correct USSR country to a prefix. These can be easily found if you use the DXCC countries list in the current call book, page 53. The first letter U can be replaced by an R. For example, RJ8 or UJ8 is in Tadzhik as is UK8J__, RK8J__, UK8R__ or RK8R__. If you would like a copy of this DXCC list, an SASE to me will bring you one by return. Alternatively, you can send me a list of calls together with a SASE and I will sort them out for you.

BLUE LAKE AWARD

The "BLUE LAKE AWARD" is offered by the South East Radio Group located in Mount Gambier, SA, to any amateur who establishes two-way contact with five SERG members. All bands and modes are permitted. Crossband operation is not permitted. No QSLs are required, only full log entry. The cost of the award is $2 Aust. or 5 IRCs. Contacts made after 1st January 1980 will be eligible for the award.

Send applications to: The Awards Manager, SERG, PO Box 1103, Mount Gambier, SA 5290.

The following are member stations of the South East Radio Group Inc.

The following are member stations of the South East Radio Group Inc.:

VK5CC	VK5NC	VK5AOO	VK5NEF	VK5ZDN
VK5CH	VK5OA	VK5ATA	VK5NGH	VK5ZDX
VK5CJ	VK5QV	VK5ATD	VK5NHA	VK5ZOD
VK5DJ	VK5SI	VK5AVR	VK5NJY	VK5ZOO
VK5DK	VK5SR	VK5KBF	VK5NOD	VK5ZWC
Vk5FF	VK5TH	VK5KRR	VK5NRN	VK3MC
VK5GJ	VK5YM	VK5KTC	VK5NUC	VK3AGD
VK5JA	VK5AGO	VK5NBI	VK5NUE	VK3ALS
VK5LP	VK5AJR	VK5NBP	VK5NVF	VK3AXV
VK5MC	VK5AKJ	VK5NCZ	VK5ZBF	VK3DGJ
VK5MS	VK5ALC	VK5NDP	VK5ZCH	VK3VEJ
VK5MV	VK5APD	VK5NDS	VK5ZCP	VK3YYV
			VK5ZGY	

SERG Net — 3.585 MHz — Mondays at 1030 UTC. Good hunting.

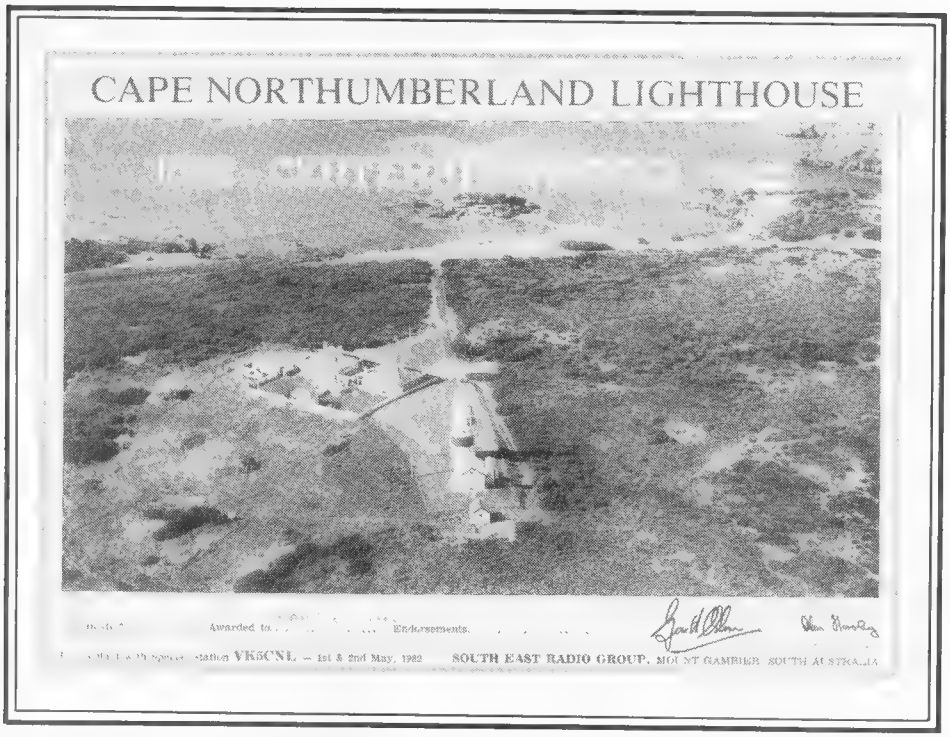
THE CAPE NORTHUMBERLAND LIGHTHOUSE AWARD

Did you work VK5CNL on either 1st or 2nd May last year? If the answer is yes, then log details of your QSO and $2.00 should be sent to the Awards Manager, SERG, PO Box 1103, Mt Gambier 5290 to claim this multi coloured award.

PORT ELIZABETH BRANCH AWARD — SOUTH AFRICA

Confirmation of five QSOs with Port Elizabeth Branch stations. Certified logs or QSL cards plus 1 dollar or 5 IRCs to be sent to The Awards Manager, PO Box 462, Port Elizabeth 6000, Republic of South Africa. QSL cards will be returned.

Port Elizabeth Branch members are as follows: ZS1GV, 1WD; ZS2s — AB, AE, AI, AJ, AO, AW, BR, BX, CC, CM, CV, CZ, DD, DK, DR, EA, EE, EQ, FM, GH, GJ, GR, GU,



BLUE LAKE AWARD
SOUTH EAST RADIO GROUP
The South East Radio Group has pleasure in granting this certificate
to SAMPLE ONLY
who has complied with the conditions under which this award is granted by contacting the required number of members.
Mode
Award No.
Date
Awards Manager
President
SERG: MOUNT GAMBIER, SOUTH AUSTRALIA
P.O. Box 1103, Mount Gambier. 5290

HE, HR, HV, HW, HZ, ID, JJ, JR, K, KC, KD, KX, LL, LO, M, MC, MJ, NS, OB, PA, PD, PG, PP, PR, QF, RI, RM, RS, RT, SI, SW, TC, TJ, TW, TX, V, VM, WV: ZS4ME, ZS5DX, 3D6BP, ZS6 AEB, AXO, BTI, BZX, NX, UF.

THE KENYAN AWARD

The Radio Society of Kenya will issue the above award to any licensed radio amateur located outside the Republic of Kenya who qualifies under the following conditions:

TECHNICAL REQUIREMENTS:
Ten points are necessary, these are established as follows:
— a contact with each 5Z4 station who must be a member of the RSK = 1 point
— a contact with 5Z4RS, the club station = 5 points

MODES APPLICABLE: all modes

BANDS APPLICABLE: all bands

ADMINISTRATIVE REQUIREMENTS:
— submission of log book photocopies witnessed and signed by a responsible official of the local radio society/club or the licensing authority
— only contacts made after 31 December 1977 are eligible
— for surface mail the charge is five US Dollars and for airmail ten US Dollars; Cheques and bankers' drafts must be crossed and made payable to the Radio Society of Kenya
— a self addressed adhesive label must be enclosed with the letter of application which should be addressed to the Society and marked "Kenyan Award" at top left hand corner of the envelope.
— all applications to The Radio Society of Kenya PO Box 45681, Nairobi KENYA

Until next month, Happy DXing, 73 de Mike, VK6HD.

QSP

SAN SP3RN

On 10 Oct., '82, a Polish Franciscan priest, Fr. Massimiliano Kolbe, SP3RN, was declared a saint by Pope John Paul II.

Fr. Kolbe was incarcerated in Auschwitz concentration camp during World War II. On the morning of 2 Aug., '41, a man escaped while being taken to work. The Nazis immediately instituted reprisals by killing 10 people from each block of the camp.

In Block 14, Fr. Kolbe asked that he be taken in place of one of the 10 who had a wife and children. This was agreed to by Lagerführer Fritsch, and Fr. Kolbe was killed by a lethal injection on Aug. 14. The man whose place he took is a Polish farmer, Francesco Gajowniczek, who is alive today.

Three weeks before his arrest, Fr. Kolbe was assigned the call-sign SP3RN. Is Fr. Kolbe our first radio amateur Saint?

Translated by Jack VK3AXQ

HEARD ISLAND EXPEDITION '83

Neil Penfold VK6NE
VK6 DX Chasers Club

At 0237 UTC, on 30th December 1983, the maxi yacht Anaconda II slipped its moorings and put to sea. With it went our operators, mountaineers and photographers along with two tonnes of food, and one tonne of equipment. About one hundred people farewelled the vessel from the wharf in Success Harbour, Fremantle.

Perth's three TV channels had camera crews there and commercial radio was also represented. The yacht was followed out to sea by TV helicopters and some small craft.

For the amateur component of this unique expedition, so many people and organisations have helped, that we became surprised, very pleasantly, and it showed that the spirit of adventure is still alive in people's hearts.

It was unfortunate that Chuck Brady VK0CW could not be with our other operators. Two days prior to sailing, he received phone calls from the USA. He then decided to return home, stressing that the reasons were connected with his personal life, and not the expedition. His decision threw a great burden onto our other two operators, so when you hear and try to work VK0HI, remember that only two men are working long hours in very cold weather to give you a contact.

Fortunately, there are other expeditioners around the main base camp at Atlas Cove, so loneliness is not a problem.

RESUME OF THE COST OF THE EXPEDITION

$30,000 was paid to the expedition company for transport, clothing, food, bedding and shelter. Equipment to the value of $18,000 was obtained in various ways. By loan, donation and outright purchase, we managed to equip our DXpeditioners with brand new, but tried and proven gear, so that we have in effect two complete stations, plus 100% back up.

Briefly, VK6 division loaned an IC730 and power supply, three element HF beam rotator and controller plus sundry items; VK3 division, IC720A, two ICP515s; VK2 division, IC730 and power supply; VK6NE, two IC730s and power supply, two 2.5 Kw antenna tuners, SWR bridgers and special lighting units. Two new diesel-driven alternators were purchased in South Australia, which were run-in and tested by the company. One was purchased by a VK6 TV company and loaned to the expedition, and VK6FS also loaned one. The supply company kindly lowered their price, however VK6FS and the TV people still paid out over $1000 each. Spares cost the expedition another $330.

From JA arrived a new FT680 for use on six metres. Because of non-arrival from Cocos Island of the TET Beam, a new 6 element beam was hastily obtained from Victoria, again at reduced cost from the manufacturer. A host of other necessary articles were purchased, but one expense not required was that for forty "jerry cans" for cartage of fuel on the yacht. VK6 people have provided these, and it was greatly appreciated as their great gesture saved around $800. The rest of the fuel which was provided free by a major oil company, was lashed on decks contained in 200 litre drums.

Other expenses over the past fourteen months, for publicity, postage, phone calls, came to about $2000 each for VK6XI and VK6NE. We found that it was impossible to conduct expedition business via amatuer radio, due to its content and also the deliberate QRM that we received.

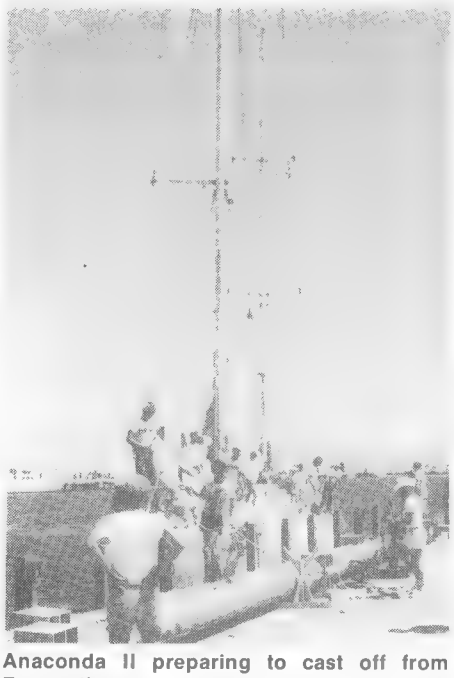
The two American operators each spent $3000 on fares to and from Perth in VK6. We know that Perth is a long way from anywhere, but Heard Island is further. And the intrepid operators have also taken three months leave of their employment for the chance to give you a VK0HI contact.

They brought with them two new LA1000 Linear Amps; an IC740, Procom headsets, keyers and a two metre hand held unit. When they boarded the plane at Los Angeles for Perth the 2 metre unit was taken out of their hands as it was being carried in Al's hand then; we haven't seen the unit since. Other items included special baluns, lightning arrestors and 240 volt surge suppressors.

Of the $30,000 paid, $10,000 came from the Northern Californian DX Foundation INC, $10,000 from the IDXF, $2,000 from the DX Family Foundation of Japan, $7,000 from KP2A, which possibly will be lowered to $4,000 when the $3,000 of the five thousand dollars promised from JA DX Family Foundation arrives.

The final cost of the expedition has worked out close to $200,000. Whether the cost was justified, will only be judged when all return, and the projects evaluated, and the results obtained published. Perhaps in a future issue of AR, a list of equipment taken could be published, as a guide to forthcoming expeditions and perhaps a check list for operators making a "normal" trip to a good DX location. Purposely, names of companies and people who have helped are not given in this issue. We intend to publish a full list in a later issue, as even this week, people have come forward with assistance.

For QSL's —
NORTH AMERICA — N2DT
— JAPAN — The DX Family
Foundation PO Box 12, Shinjuku-
Kita, Ochiai, Tokyo 161 Japan
REST OF WORLD — VK6NE



Anaconda II preparing to cast off from Fremantle.

MAYOR'S PARLOUR
Council Chambers, Port Adelaide

HCRM:mm

December 15, 1982.

Members of the Heard Island Expedition 1982/83,
On Board ANACONDA II,
North Arm,
OSBORNE. SA 5017.

Dear Members,

The Mayoress and myself, together with all citizens, not only in the Municipality of Port Adelaide, but throughout Australia would surely join in wishing each and every one of you a most successful and rewarding journey.

To all who have in any way supported this interesting venture, we pay a sincere tribute for such thoughtfulness, and take this opportunity to congratulate them, and particularly the selected personnel on board. Undoubtedly science will benefit considerably whilst the knowledge gained will also assist Australia's future.

Under the command of ANACONDA's Owner/Captain Mr Josko Grubic, who is well acquainted with all of Earth's oceans, the party will be in safe hands.

I wish to convey my personal appreciation to Mr Ian Hunt for his complete co-operation and assistance, and again extend our sincere gratitude to everyone taking part, and wish you all the best of luck on this wonderful voyage, and a safe return to port.

Yours truly,
H. C. R. Marten, CBE, JP,
Mayor.

WIRELESS INSTITUTE OF AUSTRALIA

1982 SPECIAL AWARDS

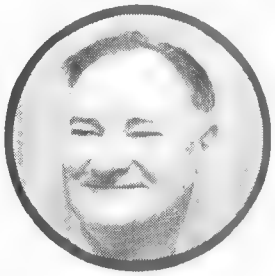
At the December meeting of the Publications Committee the following Special Awards were made.

Alan Shawsmith Journalistic Award — **Mayday by Alan Campbell-Drury VK3CD (May AR page 8).**

Technical Award — **Single Frequency Crystal Ladder Filters by Rob Gurr VK5RG (November AR page 14).**

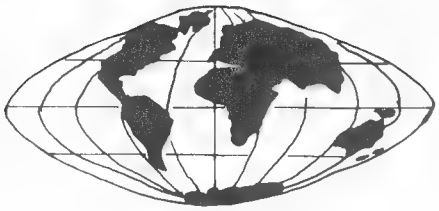
Higginbotham Award — **Peter Dodd VK3CIF.**

Alan Campbell-Drury.



Rob Gurr.

Peter Dodd.



VHF UHF - an expanding world

Eric Jamieson VK5LP
1 Quinns Road, Forreston, SA 5233.

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BAND BEACONS

Freq.	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.060	KH6EQI	Pearl Harbour (1)
50.075	VS6SIX	Hong Kong (2)
51.022	ZL1UHF	Auckland
52.008	VK0HI	Heard Island
52.013	P29SIX	New Guinea
52 100	VK0AP	Macquarie Island
52 200	VK8VF	Darwin
52 250	ZL2VHP	Palmerston North
52 300	VK6RTV	Perth
52 320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong
52 350	VK6RTU	Kalgoorlie
52 370	VK7RST	Hobart
52 400	VK7RNT	Launceston
52.420	VK2WI	Sydney
52 425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52 440	VK4RTL	Townsville
52 500	VK2BNT	Newcastle
52.510	ZL2MHF	Mt Climie
53 000	VK5VF	Mount Lofty
144.400	VK4RTT	Mt Mowbullan
144.420	VK2WI	Sydney
144 465	VK6RTW	Albany
144 475	VK1RTA	Canberra
144.480	VK8VF	Darwin
144 550	VK5RSE	Mount Gambier
144 600	VK6RTT	Carnarvon
144.800	VK5VF	Mount Lofty
144 900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147 400	VK2RCW	Sydney
432.410	VK6RTT	Carnarvon
432 440	VK4RBB	Brisbane
432 450	VK3RMB	Mount Buninyong

There are quite a few changes to the beacons this month so they have been listed again. (1) and (2) are frequency changes for KH6EQI and VS6SIX. VK5KK (52.150) and VK3RTG (144.430) are not on the air

THE 1982 SPORADIC "E" SEASON

From reports filtering in to me it seems to have been a year of mixed successes, some have, some haven't! There is little doubt there has been a very wide area from which signals have been received, indicating operators are coming on the air in lots of places, but many familiar call signs and names have been missing from the scene particularly in VK2 and VK4. It is likely the VK2 boys are finding the full impact of a Channel 0 for the first time as their TV station goes on and on pouring out programmes and making 52 MHz contacts, if not impossible, at least very difficult. The VK4 gang have had the problem for years along with VK3. There seems to have been an upsurge in activity in VK6 as noted in VK5 or else the band has been open to there longer!

Much of the following information comes from Bob VK5ZRO, who usefully fills in the gaps in my own log. Bob, incidentally, was awarded the Kenwood Trophy for the "Amateur of the Year in VK5" for his help and interest to those around him, and for showing the true amateur spirit of comradeship. We extend our congratulations Bob.

AS IT WAS SEEN IN VK5

9/11/82: 0840 VK6WG and VK6KJ on 144 and 432. 1330: VK6XY, VK6BQ on 144. 12/11: From 2316 VK4ALM, VK4ZYA, VK4ZDK, VK4DO, VK4LE. 13/11 0001 VK2QF. 14/11: 0605 to 0830: VK6ZDR, VK6RO, VK6ZWH, VK4KRF, VK4ZSH, VK4PU, VK4DO, VK2BMX, VK4ALM, VK2ZZV, VK2ZMG. 19/11: 0740 VK6WG, VK6KJ on 144 & 432. 1000: VK6BE 144 & 432, plus VK6BQ, VK6NL, VK6AGW, and VK6BE on 144. 20/11: 0911 VK6WG 144 & 432. 25/11: 0942 VK6WG, VK6KJ, 144 & 432: 1026 VK5KMW (Ceduna) on 144; 1228 VK5ZEE (Woomera) 144 & 432, signals 5 x 5 on 144, 5 x 9 on 432, and weak on 6 metres! 26/11 0940 and 28/11 1135 VK5ZEE on 144 & 432. 29/11 0745 VK6ZFL/8 5 x 9; 0920 VK6KRY, VK6RO, VK6AKT, VK6WD, VK6XW, VK6BE.

1/12: 0710 VK2ZIR; 0733 ZL1BFQ, ZL1MQ, ZL2AAA. 3/12: 2325 VK4YJM. 4/12: 0205 VK4ABP, VK4RO, VK4ZYZ; 0430 to 0515 JA1, 2, 3, 7, 0, all 5 x 9. 5/12 and 7/12: VK5ZMJ (Port Pirie) 144 & 432. 8/12: 0840 VK6ZPG, VK6ZDY, VK6KRT. 9/12: 0725 ZL2TZP, ZL1AKW, ZL2TUV, ZL1MQ, ending 0805 most with 5 x 9 signals; 1100 VK6RO, VK6ZDR, VK6WD, VK6BV. 11/12: 0105 VK4ZWH, VK4DO, VK4ZTV; 1030 VK6SM; 2237 VK4DO, VK4LE and JA7NAM. 12/12: 0210 VK6BV, VK6RO, VK6ZPG, VK2ZZV, VK2AKK. 13/12: 1020 VK5ZEE 144 & 432; 1040 VK7ZOO, VK7ZIF, VK7ZUC. 14/12: 0610 VK6ZH, VK6ZWH, VK6SM, VK6AUS, VK6ZPG, VK6UU, VK6RO, VK6ZDR, VK6VP, VK6KAT.

Just to prove he is rather versatile, Bob VK5ZRO wasn't content with all the above contacts so from his work car park at Hindmarsh (Adelaide suburb) on 15/12 at 2210 he had a two way contact on Ch. 50 FM with VK3ARR (mobile) who was in eastern Victoria. The mobile to mobile contact with whips was 5 x 3. (Not a bad effort Bob!) To prove it was no fluke the next day, 16/12 at 2155 he had a contact with VK3AKN and VK3ATN at 5 x 5 again from the car park with his mobile equipment. However, he did use the Channel 7 repeater in Victoria this time!!

17/12: 0620 VK2BAE, VK2ZFS, VK2ZZV, VK2ZHE, VK2ZCV; 2106 VK5KMW 52 & 144; 2309 VK2BA, VK7ALM, VK7ZIF, VK2KFD, VK2XBW, VK2ZIR. 18/12: 0001 VK7AZ, VK7ZIF, VK7TC, VK7KWR; 0030 ZL3TIG, ZL2CD, ZL3ADT; 2222 VK5KMW 52 & 144; 2325 VK6ZFL/8; 2345 JA4MBM; 2348 VK4DO. 19/12: 0130 ZL2TLS, ZL2TZG, VK3CW, VK3CMD, VK3AZY, VK3CI; 0220 ZL1AKW, VK3AMQ, VK3EQ, VK3DQ, VK3YPY, VK3NM. 23/12: 1140 VK6WG 144 & 432; 24/12: VK5ZUC reported receiving the Albany 2 metre beacon from 2330 (23/12) to 1400, a period of fourteen and a half hours before he was able to raise anyone in Albany, finally working VK6KJ and VK6WG on 2 metres!

25/12: 2125 VK3NN on 144. Gary is the son of the late Herb VK3NN who lived in Western Victoria and who made many contacts into VK5 particularly with Mick VK5ZDR. Gary had his own call sign previously at the same time as his father, and it is good to see the original one being retained by a member of the family.

27/12: 0235 VK4AMH, VK4ZJB, VK4ZMD, VK4WQ, VK4KXM, VK4ABP, VK4LE. 28/12: 0630 to 1340 the band was open to VK6 rather exclusively except for VK8GB. Those worked were VK6RO, VK6BV, VK6ZDR, VK6ZZ, VK6SM, VK6ZH, VK6ZPG, VK6BE, VK6VP, VK6ZTT, VK6ZWH, VK6YH, VK6SQ, VK6AKT, VK6AB, VK6BA, VK6ZDY, VK6IQ, VK6MX, VK6PP, VK6XW with VK8GB at 1035! 29/12: 2245 VK5AYD (Peterborough) on 6 metres! 31/12: 1237 VK2ARA; 0940 VK5MC 144 & 432, and being copied as far as Cowell on Eyre Peninsula.

1/1/83: 2340 VK4ZWB. 2/1: 1010 ZL2KT, ZL2AQR; 1020 to 1320 VK2ASZ, VK1RK, VK2BA, VK2ZHT, VK1VP, VK1KAA, VK2YVG, VK3AZY, VK2ZNS, VK2ZRU, VK2BQN, VK2ZIR, VK2XAJ, VK4WS, VK4ZRL, VK2ZHE, VK3XQ/M (5 x 9), VK2BHO. 3/1: 0235 to 0545 VK6GU (Wyndham), VK3AZY, VK3BDL, VK2AWQ, VK6RO, VK6GU (again, still there 0417), VK6GL, VK6ZDR, VK6AKT, VK6ZPG, VK6KZ, VK6BV; 0648 JA7NAM, JA1VOK, JA1WHS.

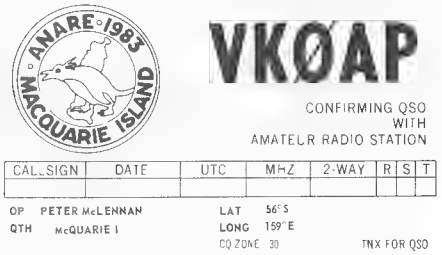
Readers will be able to see from the above the high level of contacts made with the VK6 stations, spread right throughout the usual "season" and most of the contacts have been very strong. Particularly pleasing to have had words with John VK6GU whom I met while in Wyndham last July. John could be heard for at least three hours with signals from S3 to S9 and was able to make contact with stations over a very large area.

However, this was his first real DX day for the summer so he must spend a lot of time listening to a dead band except for JA's.

Bob VK5ZRO advises that for the past twelve months skeds have been kept with VK5ZRG in Cowell on 144 and 432 and it was only on rare occasions contacts could not be made over the 210 km path. Others to join in included Jim VK5ZMJ and Neil VK5ZEE at Woomera (500 km path).

SIX METRES FROM MELBOURNE

Gil VK3AUI has written to say the work helping set up the VK0s has taken a toll of his operating time, but has been able to chalk up the following on 6 metres: 24/10: JA1, 2, 3, 4, 5, 6 from 0800 to 0930; 9/11 VK4; 11/11 VK4, ZL; 14/11 VK2, VK8GF, VK4, JA2; 15/11 VK4; 16/11 JA4, JA6; 26/11 VK5ZEE; 28/11 ZL; 29/11 VK8GB, VK8GF, VK4, VK5. 1/12: ZL1MQ; 3/12 ZL1AKW; 4/12 JA2, JA3, JAO, VK4; 9/12: VK2, VK4, VK6; 11/12: VK4; 12/12: VK6ZPG; 16/12 VK4DO; 17/12: JA1, JA2, JA7, heard P29SIX; 18/12 VKOAP, ZL3ADT; 24/12: ZL3TIB, ZL3HB.



MACQUARIE ISLAND

Gil VK3AUI has a few items of interest regarding the operations of VK0AP and says there were some problems not yet fully explained. One of the latest was a RIOMETER which is used to listen to solar/cosmic noise. Unfortunately it is basically a very sensitive receiver with very little filtering and almost any RF source interferes with it.

Gil, VK3AUI, at very short notice, manufactured two notch filters to alleviate the interference to the Riometer. These filters were believed to be of professional appearance and performance and were despatched to Peter VK0AP for express delivery to the supply vessel, by Australia Post, before the due sailing date of the last trip before next November.

There are many problems down there, not only RFI, with extreme conditions of wind, rain, snow, ice, salt spray, windblown sand etc. Outside work is difficult and survival of aerials is a real problem.

Signals were first heard in Melbourne by Geoff VK3AMK at 0030 on 18/12. Geoff also was the first to hear the VK0WW and VK0ZVS operations ten years ago! First station worked was Andrew VK3KAQ at 0051. The band opened again around 0530 and remained open until around 0730. Many Melbourne stations worked Peter, with him working twenty-six stations in VK2, VK3 and VK7 during the opening. The Keyer is temporarily off the air due to RFI but Peter will listen and call any station he hears. It is hoped the JA's will eventually reach that far.

TWO METRES AND ABOVE TO ALBANY

Wally VK6WG has been kind enough to supply information of contacts between Reg VK5QR and himself on 19/11/82, and with others in VK5, with the following sequence of events.

2250 on 18/12 (UTC day) VK5VF on 144.800 first heard. 2322 gone. Beacon back again at 0120 but just audible. 0352 VK5VF fair strength, better at 0625. 0630 worked Andrew VK5ZUC. 0640 beacon steady. 0733 worked VK5ZUC, VK5ZDR and VK5ZK. All above on 144 MHz. Then worked VK5ZUC, VK5ZDR, and VK5ZRO 5 x 1 at start and going on to 5 x 7 on 432 MHz. This rise in signal seemed to indicate distinct possibilities for higher bands.

Reg VK5QR was contacted, and tests were made throughout the night on 1296 with good SSB quality and strength. Reg was also contacted on 2304 MHz for a period of over half an hour on one occasion. 3456 MHz was also tried but nothing heard. Went back to 2304 and 1296.

1296 MHz was being received by Reg on a 4 element beam one metre above his table. Then he tried a three inch length of wire in his converter and could read some of my SSB and the keyer, the time now being very late in the evening. Earlier in the night Bernie VK6KJ and I could read the one watt from Reg's 1296 at very good strength. We had many good contacts on 1296. I used about 50 watts into a six foot dish.

AMATEUR TELEVISION ON 1290 MHz

Wally VK6WG goes on to report that he received ATV signals from VK5QR on 1290 MHz that night of 19/11/82. Reg was using 100 watts, and Wally was using a Microwave Modules 1296 MHz transverter with an IF of 144 MHz into a Toshiba C531 monitor on Channel 5A. Wally reports as follows: "The pictures started off with fuzzy lines and plenty of snow, but good enough to recognise things. Bear in mind that the MM converter was not tuned to the 1290 MHz frequency, being 6 MHz away, and no preamp. I easily identified Reg when he televised himself, and on a meter he televised, I told him where the pointer was; he televised a man talking to a woman in a commercial, and used several odd movements of the camera in an effort to trick me but I was able to tell him each time where he was going. Next time I will try and get a photo of the screen."

I am sure the VHF fraternity offer their congratulations to you both on your achievements so far, and particularly in regard to spanning the 2000 km (approx.) distance between Albany and Adelaide with 1290 MHz television. Ultimately we hope this will become a 2-way achievement and we wish you well.

MORE ON TWO METRES AND ABOVE

Andrew VK5ZUC has written to say how well the bands 144 and above were performing in November, several opportunities existed for good contacts to Albany, with the best being 19/11. It is interesting to note that the contacts Andrew made were as a result of hearing the VK6RTW beacon in Albany, and Wally VK6WG mentioned above that his contacts resulted from hearing the Adelaide beacon VK5VF. So much more proof of the assistance given by beacons.

0625 worked VK6WG after hearing VK6RTW. Worked again at 0715 on 144.1 with VK5ZDR, VK5ZK and VK5ZRO joining in at 0730. VK6WG was also 5 x 1 at 0755 on 432.1 SSB. 1015 VK6BE 5 x 5 on 144.1. Next cycle VK6WG 5 x 9 at 1120 on 432. VK6BQ at Denmark (west of Albany) 5 x 4 at 1140 on 432. VK6KJ 5 x 9 at 1210 on 432. VK6NL 5 x 5 1240, VK6BE 5 x 9 1300, VK6NL 5 x 5 1320. VK6AGW 5 x 3 at 1350 with VK5ZDR and VK5ZRO.

VK6BE 5 x 7 1415 432.1; VK6SF 5 x 1 at 1420; VK6WG 2119 on 144, 2155 on 432 5 x 8; VK6KS 2135 on 144 5 x 9+, 2150 on 432 5 x 5, with VK5ZDR and VK5ZRO. VK6WG 2220 5 x 9 with VK5ZPE on 144, and 5 x 5 at 2225 on 432. On 20/11 VK6WG was 5 x 9+ on 432 with VK5ZRO, and VK5ZDR from 0909 to 0920. VK6KJ and VK6WG were 5 x 5 at 1010 on 432.

Thank you Andrew, shows what can be done when conditions are suitable and you move in the right places!

TWO METRE ESCAPADES IN QUEENSLAND

Steven VK4ZSH has written with further exploits during his jaunts through the west of Queensland and into the Northern Territory. It's very interesting reading so I am sure you will want me to share it with you!

"QTH: 12 km west of Camooweal and in VK8 by 1 metre! Operating 2 metres. 22/10: 1132-1201 three JA1s with JA1VOK as first VK8 to JA1 QSO. Heavy doppler flutter on 6 metre signals at time, none on 2 metres with only slow tropo type QSB. Beacons in 1043 to 1230.

"23/10: 1138 to 1320 beacons only.

"24/10: 1046 to 1139 seven JA1s, four JA7s and one JA9 (probably portable JA1), with JH7OGY first VK8/JA7 QSO, one of the JA7 QSOs will be a new VK8 two metre record. Beacons 1020 to 1230.

"25/10: 1138-1139 one JA7, one JA1. Beacons 1045-1230. Discussing the opening with Hidde JA2DDN we noted unlike April recent openings signals were all landing in Japan 2 to 4 degrees east of my longitude and concluded to work JA9 would have to shift west three degrees which I did the next day.

"28/10: QTH 60 km east of Tennant Creek in VK8. 1046-1146: two JA2, one JA3 and at least three JA9, with JA9WDE probably first VK to JA9 QSO on 2 metres. Beacons 1031-1227.

"29/10: Fired with enthusiasm I checked the map, chose the best area to try and work JA8 from and headed off via Mount Isa. By late dusk despite the mid 40 degree heat, a puncture in sight of Urandagi and having to change the points just over the border, I had selected the biggest and deepest bull-dust bog in the Simpson Desert!

"About 0930 TV signals on 50 MHz, 0945 JAs on 50 MHz, 1000 JAs on 52 MHz, 1042 paging transmitters on 146 MHz appeared. 1130-1140 JR7ICP Mutsa City (Northern JA7) JA8AKB Iwamizawa City about 40 km NE of Sappora both heard my signals but I

was only able to copy my call sign coming back. 1220 paging transmitters disappeared.

"Although no two-way QSOs resulted, it has proved the path possible. At approx. 138° E 22° S it's the farthest south signals have been heard so far and the farthest north in JA and about 800 km further than my longest two-way QSO. Also interesting that it was open to JA1, 7 and 8 at the same time, an 800 km spread N/S even though it was 3° longitude west of the N/S path. It is also the same geomagnetic latitude as Vladivostok (to Alice Springs area).

"1730: I was awakened by the roar of a 4WD and a 'You right mate' enquiry. The 'road' had been recently repaired and unfortunately the cattle agisting road trains heard about it and were using it as a short cut and had reduced it to a long series of bull dust bogs in just one week. In places it was so bad that the road had been buried 1½ metres below ground level. The sides were so steep and covered in bull dust that it took the 4WD five minutes to get up the bank so he could get around in front of my car to pull it out!

"2030: Started the 55 km back to Urangadi and despite cross country detours, the engine stopping three times due to burnt points, a part falling off the carby, and bull dust clogging the air filter and starter motor, by 0020 I was bogged again only 6 km from Urangadi. After half an hour of digging I arrived in town looking rather pale, covered from head to foot, inside and out in bull dust.

"The couple at the post office, which is also the telephone exchange, general store and one of the only three buildings in town, took pity on me and a much appreciated bath resulted. Apart from the 60 km around Urangandi and coming close to having my 2 metre yagi damaged by four Indian elephants, the 6700 km (short one this time) trip really was uneventful — honest (well, that is if you don't count the brakes failing coming down the Toowoomba Range!)

"I arrived back in Brisbane just in time to hear from locals 'you should have been here on the weekend, there was a great opening to ZL and P29 on 2 metres'. Conditions built up again and on 6/11 at 1000 worked ZL1UKE for country number four on 2 metres.

"The strongest paging signal copied this trip was S1½ compared with S7 in May. Also listened to paging transmitters on 142 MHz by tuning the IC251 out of band, signals were weak because of the front end selectivity but was able to tell that the 142 and 146 MHz beacons appeared within half a minute of each other at the start of openings.

"I would like to thank Hidde JA2DDN and Kazu JA1RJU for the considerable amount of telephoning they did to alert JA9s, northern JA7s and JA8s.

"Frank at Urangandi is offering one pound jars of genuine Simpson Desert bull dust for $1. Enquiries and orders to the Postmaster, Urangandi, Queensland!"

Thank you for your letter Steven. I am sure you have many readers following your exploits in the back working 2 metres to Japan. You are certainly following the true amateur spirit of adventure and experimentation and at the same time opening up new vistas and horizons of VHF interest, and giving food for thought to those able to have access to scientific think tanks. One wonders where it might all end. We wish you well for future trips. One of your rewards is working four countries on 2 metres. Has anyone else done that from Australia?

HEARD ISLAND

The VK6 VHF Group News Bulletin mentions that the VK6 Heard Island expedition will be operating in the 52 MHz band for sixteen hours each day whilst on the island.

Two 6 metre rigs are part of the equipment list, as well as a 70 watt 6 metre linear amplifier and a 3 element beam. A beacon, beaming towards JA will be operating on 52.005 MHz . . . via VK6UN.

LATE NEWS

A35GW in Tonga has been working into New Zealand, so far no reports to here of working to VK. Also noted that ZK2RS Niue has been worked by VK2BA, VK2ASZ, VK2ZYI, VK2BOD, VK2EDB, VK2EEC, VK2VC, VK2BNN and VK2YOE. This was on 29/12 on 6 metres around 0231 with signals to 5 x 9 for about an hour. Also, VK0AP was worked on 18/12 at 0537 for 10 minutes around 5 x 4 by VK2BA, VK2BHO, VK2VC, VK2YOE. (Thanks to VK2BA.) On 28/12 A35GW heard by VK2ASZ. On 29/12 VK2ASZ heard by A35GW! That's getting close!

2/1/83: Report of VK3KAZ hearing VK0 beacon on 52.100 at 1100. VK2 working right across continent to VK6 around 1215. VK4WS reported 6 metres open all day in Queensland to most states, plus P29, H44, ZL and JA.

ZL4OY/C will be operating 6 metres from Chatham Island south of New zealand from early January 1983. Might still be on when you read this. Graham VK6RO sent word that Nori JR6IGG has worked his fifty eighth country on 6 metres by contacting the DX-pedition to St Peter & St Paul Island.

Incidentally, thank you to Nori JR6IGG who sends news of happenings in Japan regularly to Graham VK6RO who then passes on what's relevant to me. Thanks chaps.

Mark VK5AVQ advises of the installation of a new solid state 2 metre beacon, running at the moment with 10 watts output and reported as being stronger than the previous beacon which obviously was down in power! There are a few problems to be sorted out yet, but the unit looks good, and should be a useful asset to VK5 when operating as we would like it. It is planned to leave it on the present frequency for the moment, it's enough to sort out one lot of problems without compounding the matter with others which are more personal in nature! The VK5 VHF fraternity thanks Mark for his work and dedication.

Mark also advises the successful installation of the Adelaide UHF repeater near the site of the present Channel 8 repeater. It is running 12 watts output on a frequency of 438.525 MHz with the usual 5 MHz offset. A masthead pre-amp has boosted the receiving range of the repeater. That this has been successful was demonstrated today (4/1/83) when VK3VL in central Victoria worked VK5KRA through it between 2100 and 2200. At this late hour details are scarce, but it's a pretty long haul for a UHF repeater!

I did hear during one of the last 6 metre openings before writing this that Des VK5ZO in Mount Barker had worked a station in Canberra on 2 metres. Unfortunately, in the short time available I have not been able to obtain any information, but will try to do so before next month's notes.

Readers please note that a letter symbol no longer follows any times given in the text. Since the demand to use UTC for any times based on what originally was known as GMT, and which could conveniently be shortened to Z, has now reached "AR", I feel to add UTC to the multiplicity of times used in my text is time wasting for me and the typesetter, so I believe the notation at the heading of the column that all times are UTC will help those involved. The times for our purposes are still GMT, Z or UTC whatever you like to call it.

I hope 1983 has started off well for you, and may continue so. Closing with the thought for the month: "The smallest good deed is better than the grandest intention". 73. The Voice in the Hills.

AR

QSP

SAINT DAVID'S DAY SPECIAL EVENT STATION

In 1983 (The Year of The Castles) a Special Event Station will operate to commemorate the National Day of Wales and will run for the 24 hours of 1st March 1983. It is hoped to provide a focus for Welsh exiles, relations and friends throughout the world. All callers will be welcome and contacts will be mainly in English to serve this end.

The Special call sign will be GB2SDD (St David's Day) and all QSO's (contacts) will be acknowledged with the Special Event QSL card. In addition to this, an attractive HF award is available to radio amateurs who work the Special Event Station along with any other five GW stations during the month of March 1983.

It is intended to work on all HF bands (conditions permitting) which will include 10, 15, 20, 40 and 80 metres, contacts will also be welcome on 2 metres throughout the event period.

Further information can be obtained from the Event Co-ordinator GW4HOQ 13 Strawberry Place, Morriston, Swansea, Wales UK.

AR

JOINS IN FEEDLINES

When making joins in feedlines etc, a neat way to make the join waterproof or just cover it, is to use the small plastic boxes 35mm films come in. Drill a hole in each end just enough for the respective cables to fit through. Pass the ends through the holes, join them and snap the lid shut. If necessary seal around the holes or maybe encapsulate in epoxy resin.

Jonathan Marshall SWL

AR

INTRUDER WATCH

Bill Martin, VK2EBM,
Federal Intruder Watch Co-ordinator,
33 Somerville Rd.
Hornsby Heights, NSW 2077.

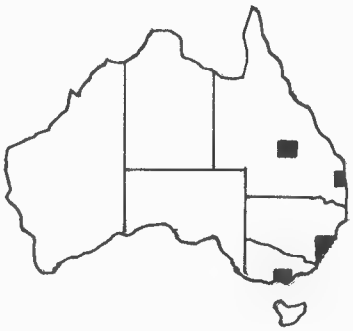
On the confounding aspects of radio signal propagation with respect to the signals of intruder stations.

I have long been puzzled by the inconsistencies of propagation. I have, for instance, been conducting a QSO with an amateur station in New Zealand, and have had the signals fade to zero before my very eyes/ears. Then, conversely, I have been in contact with a VK3 station, at about S2, and within minutes, his signal strength increases to an S9 plus. Mostly, I have observed, the fading of DX signals seems to coincide with my contact of a rare DX station, or a new country. How the "Ionosphere Manager" knows when I'm desperately trying for a new country, I'll never know — but he reacts always very quickly to shut me down!

All the foregoing leads me to question another amazing behavioural pattern of the ionosphere, and it's treatment of radio signals, with respect to the directivity of the signals of intruder stations.

Why, for example, are the signals of intruder stations only heard in certain states of Australia, and then why only in the same particular areas of those states?
To expound:
Intruders are NEVER heard in VK8;
Intruders are RARELY heard in VK7;
Seldom, if ever, are intruders heard in VK6 or VK5 . . . yet intruder signals are heard and logged in VK1, VK2, VK3 and VK4 almost **daily**. But, mind you, ONLY IN THE SAME AREAS OF THESE FOUR STATES! Why is this so? Is it because ionospheric propagoation favours only the eastern states of Australia? Are the intruder stations working to a cunningly devised plan designed to thwart and abort the QSO's of radio amateurs ONLY in the eastern states? Is part 2 of their long-range, many-pointed plan designed to then create havoc on the amateur bands in the middle and western states — (after having first satisfied themselves that the amateurs on the eastern seaboard of Australia have been successfully silenced and have turned to some other leisure occupation)? I have noticed that, when a particular band is open, the intruders are invariably registering S9 or more on the meter. When the band is closed, so the intruder signal may fade to perhaps an S2 or S3. BUT THEY STILL GET THROUGH.

Which brings me to the point of the story:
Why do some Australian amateurs always hear intruder stations, and MOST OTHERS never hear them? I am, of course, basing my conclusions on the evidence of the quantity of intruder reports received by the Intruder Watch, and the geographical location of the reporting stations. And this evidence PROVES CONCLUSIVELY that the intruder stations are heard ONLY in some states of Australia, and then ONLY in **some** areas of these states.



■ *INTRUDER PROPAGATION TO THESE AREAS*

It did occur to me that perhaps the intruders were in fact being heard in ALL the states, and in most parts of all the states, and that the amateurs who are hearing these intruders simply do not bother complaining, as they are happy to QSY to another spot on the band, and let the intruder(s) push them aside.

Of course, if this is so, then my whole theory of the idea of selective propagation favouring certain states and certain areas within those states, is completely erroneous. In other words, I'm wrong yet again!

I wonder which theory is true?

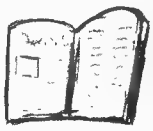
If your QTH is in one of the intruder-free areas (half your luck) but by chance you **do** happen to hear an intruder station, the Intruder Watch would be pleased to hear about it to at least confirm or abrogate the above theories.

Please send any intruder reports to your Divisional Intruder Watch Co-ordinator, whose particulars can be obtained from your Divisional Office, or in the 1982/3 Call-book.

Please help the Intruder Watch.

AR

MAGAZINE REVIEW



Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic. 3078.

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

RADIO COMMUNICATION Nov. 1982
Directional active loop receiving antenna. (TC) Triambic keyer. (P) FT480R and IC290E compared. (G)

CQ Nov. 1982
Special RTTY issue. (G)

ZERO BEAT Nov. 1982 (Youth Radio Clubs)
VK CW QRP Club. (G) 5 Watt CW Transmitter. (P)

HAM RADIO Sept. 1982
Phase lock principles. (G) Homebrew Microwave Antenna. (C)

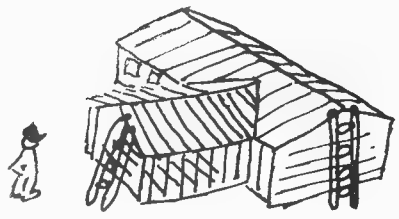
73 MAGAZINE Dec. 1982
Taming two metre linears. (G) Co-axial feedlines. (N)

QST Oct. 1982
Use of Solar Power. (G) Automatic antenna matching for mobiles. (C) 1982 International DX Contest. (G)

ORBIT Aug. 1982
435 MHz Helix. (P) AMSAT Computer Project. (G) The NASA network. (G) AMSAT news. (G)

MICROWAVES Sept. 1982
Among new developments is a 10 GHz video transmitter complete with 6 dB gain antenna all in a case 2" x 1" x ⅜". All it needs is a 1 Volt PP video signal and an 8-20 V DC supply . . . and 4,000 dollars!

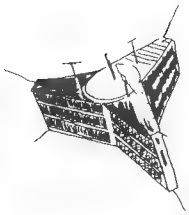
AR



WHAT ARE YOU BUILDING?

Please tell AR about it so we can tell others.

Amateur Radio is an experimental hobby — if you share your experiments with us you are enriching our hobby!!



AMSAT AUSTRALIA

Bob Arnold,
41 Grammer St, Strathmore, 3041.

NATIONAL CO-ORDINATOR
Chas Robinson VK3ACR.
ACKNOWLEDGEMENTS
Amateur Satellite Report.
ARRL News Bulletins.
AMSAT-UK.
INFORMATION NETS
AMSAT AUSTRALIA
Control VK3ACR.
1000 UTC Sunday.
7.064 MHz (Summer).
AMSAT PACIFIC
Control JA1ANG.
1100 UTC Sunday.
14.305 MHz.
AMSAT SW PACIFIC
Control W6CG.
2200 UTC Saturday.
28.880 MHz.

Updated information on Orbital Data may be heard on the above Nets, participation by all interested Amateurs is welcomed.

SPACE SHUTTLE

There is a reasonable possibility that 'ASTROHAM' W5LFL, will carry on board Space Shuttle Mission No 9 a 2 metre handheld transceiver with ground plane antenna.

The equipment will be modified to NASA specifications and will give many amateurs around the world, an opportunity to work a Manned Orbital Spacecraft.

The majority of shuttle missions have an orbit inclination of 28.5 degrees which makes the spacecraft out of sight for most of the southern part of Australia; it is fortunate that Mission No 9, scheduled for launch early October 1983, will have an inclination of 57.0 degrees thus making it accessible to every part of the country.

We certainly hope this good news will be confirmed.

AMSAT BOARD

Congratulations to Tom Clark W3IWI, Pat Gowen G3IOR and Harry Yoneda JA1ANG on their re-election to the AMSAT Board of Directors.

PHASE IIIB

The performance test results on the Phase IIIB equipment are summarised below:

1. MODE 'B' TRANSPONDER

Parameter	Performance @ 0°C	@35°C
Power Output	51W PEP	45W PEP
Av Power Out	14.3W	12.8W
Freq Out (435.100 In)	145.906	145.900
Eng Beacon	145.988	145.986
General Beacon	145.8105	145.8091
Receiver NF	3.0dB	

Gen Beacon Output 1.8W
Eng Beacon Output 3.0W (25°C) Transponder OFF
Eng Beacon Output 1.5W (25°C) Transponder ON
Bandwidth 154 kHz @ 1dB point
152 kHz @ 3dB point
154 kHz @ 30dB point

Ground Station Requirements:
750/1000W EIRP, RHC Polarisation, Receiver NF 3dB or better.

2. L-BAND TRANSPONDER

Efficiency is less than designed. Power Output 35W. Interlock and 3rd order intercept products are now OK. The launch of Phase IIIB is still holding to the scheduled time slot around 20th April next.

PHASE IIIC

Amateurs in this region of the globe will be pleased to hear that Phase IIIC is unlikely to be Geo-Sync (and at a location inaccessible to Australasia). More probably it will have parameters similar to Phase IIIB following a USAF launch.

UOSAT 9

Little news is forthcoming on UO 9, the controllers at the University of Surrey are probably being exceedingly cautious in order to avoid the possibility of a further slip up. The spin down is virtually complete and is now one revolution per ten minutes, the Z-Axis has to be corrected before the Gravity Gradiant Booms can be deployed.

Generally speaking all systems are good although there is some doubt about the efficiency of the CCD camera.

Status reports are given through the satellite's telemetry from time to time; whilst this information is readily determined it is not so easy to obtain the technical data via the high speed telemetry as this appears to be transmitted at weekends only and then during European daylight hours' ie at some unearthly hour in the middle of our night!

We certaily hope that the systems aboard UOSAT will be in an operating mode before many weeks of the new year have passed to give operators an opportunity to experiment before the delights of Phase III are with us.

NEW RUSSIAN AMATEUR SATELLITE

At 0756 UTC on 18th November 1982 ISKRA 3 (RK03) was deployed from the Russian Salyut 7 spacecraft in a similar manner to the launch of RK02.

Shortly after launch the satellite had an orbital period of 91.615461 minutes and a longitudinal increment of 23.275886 degrees west. The inclination was 51.6338 degrees.

The satellite has been transmitting complex telemetry data on 29.583 MHz and the transponder, with an uplink frequency of 21.230 to 21.580 MHz and a downlink frequency of 29.270 to 29.620 MHz, has carried a number of local and overseas QSO's. At the time of writing ISKRA 3 is loosing height quite rapidly and will have re-entered the earth's atmosphere by the time these notes are published.

Congratulations to our Russian collegues on a successful project.

PUBLICATION REVIEW

AMSAT-UK continues its high standard of publications on satellite related subjects with a new book entitled *"Satellite Tracking Software for the Radio Amateur"* by John Branegan, CEng, MIRERE, GM4IHJ.

INTRODUCTION

Every year an increasing variety of man made space craft and satellites take to the skies. These vehicles can provide a wealth of Scientific, Educational, Experimental and Entertainment information to individuals able to locate and track them. This tracking can involve some rather complex mathematics, however, the arrival of the micro computer has provided a cheap effective way to "hide the mathematics in the software of the computer". Thereby allowing anyone who has access to a micro, to locate and follow any satellite they wish.

This collection of satellite tracking software, ranges from the very simplest of programmes, through to very specialised programmes. The three major types of satellite orbit (Near earth circular, Elliptical and Geostationary), are all covered, and attention is given to the Weather satellites, Scientific Experiment satellites, Radio Amateur Communications satellites, professional Communications satellites and the Geostationary satellites providing Global Weather and Entertainment TV pictures. Additionally the programmes can be used to track near earth manned space vehicles such as Shuttle, Soyuz and Salyut.

The presentation of each programme is designed to allow someone with little or no knowledge of satellite mathematics, to input the programme listings into a micro computer and get useful

This photograph depicts the antenna farm at VK3ACR. Chas Robinson, the National Co-ordinator for AMSAT in Australia, uses most of these antennae in pursuit of his satellite interests whether they be communicating to and from satellites or maintaining links with AMSAT connections across the world.
Pictured are 144 MHz eleven element Cross Yagi, two metre Dish with Dual Feed for 70 and 23 cm, 146 MHz Ringo, 70 cm Ground Plane, 70 cm eleven element (ATN), 2 metre sixteen element ZL Special, TH3 junior, twelve element ATV Yagi, 3.5 and 7 MHz inverted 'V' Trapped Dipole, 1.8 MHz Marconi.

results at once. Appendices are provided giving detailed mathematical descriptions for those who want them and, the structure of the programmes is arranged, so that the user may progress from the simple programmes to the more involved ones simply by adding lines to the simple programme. In addition those who wish to construct their own progammes from pieces of individual programmes herein, will find that the programme structures do allow 'collections of parts' to be put together.

BASIC LANGUAGE FEATURES

The language used in these programmes attempts to keep near to Microsoft BASIC, whilst allowing the material to be directly input into ZX81 micros. Special features found in some Basic dialects have been excluded in an effort to keep the language as universal as possible. This has meant that several programmes are longer than they need to be for some micros, but this has been accepted in the interests of universal applicability.

Despite the above, some micro owners will find a need to make changes to the listings, in order to accord with their personal dialect. Every effort has been made to make this as easy as possible even where this has meant the inclusion of WORDS and COMMANDS which are redundant in most modern BASIC dialects.

The following programmes are included:

PROGRAMMES FOR CIRCULAR ORBITS
- Simple Nine — a UOSAT programme
- NOAA Weathersat
- RS8 Russian Amateur Satellite
- Russian Meteor Weathersat
- ASCOT — Any satellite circular orbit
- UOSAT all one days orbit
- OSCAR 8. Several weeks tracking
- RS 3 to RS 8 series — all six satellites time sequenced for several weeks orbit

PROGRAMMES FOR ELLIPTICAL ORBITERS
- A minimum elliptical programme SRET 2
- Phase 3B type tracking and communications programme

PROGRAMME FOR A GEOSTATIONARY ORBITER
- Locating a Geostationary Satellite

APPENDICES
- Glossary of Terms
- Sources of Orbital Data
- How to make up a BASIC satellite tracking programme — OSCAR 8.

This most useful book is printed in A4 format and may be purchased direct from AMSAT-UK, 94 Herongate Road, Wanstead Park, London, E12 5EQ, England.

The price for non-members of AMSAT-UK is £3.50 (members £3.00) plus £1.90 for packing and airmail. All remittances should be in English Currency.

AR

ELECTRONIC HOBBYIST!

DO YOU LIVE IN . . .
Ringwood, Lilydale, Boronia, Wantirna, Bayswater, Mooroolbark etc? . . .

We carry a comprehensive range of electronic components at very keen prices.

Ian J. TRUSCOTT ELECTRONICS
CNR EASTFIELD & BAYSWATER ROADS, SOUTH CROYDON, VIC.
TELEPHONE (03) 723 3860

"Doris, you're my best friend. I feel it's my duty to tell you the truth about your husband."
"What is it?"
"I've seen your husband running around with other women."
"Oh" yawned Doris, "is that all?"
"Doesn't it bother you?"
Doris simply shook her head.
"Why not?"
"Well, my husband is just like that old dog of yours that chases cars. Even if he caught one he wouldn't be able to drive it."

AR

NATIONAL EMC ADVISORY SERVICE

Tony Tregale VK3QQ
FEDERAL EMC CO-ORDINATOR
38 Wattle Drive, Watsonia Vic 3087

RSTV . . . CATV . . . DBS . . . AUSTRALIAN COMMENT

The Broadcasting Tribunal's recommendations are only the first step towards PAY-TV in Australia. How much will it affect you? How much will it cost? When will it start? The Government must first decide to introduce Radiated Subscription Television (RSTV).

The next step is creating a regulatory body which may or may not be part of the Australian Broadcasting Tribunal. Amendments to the present Broadcasting and Television Acts might have to be made and any new legislation could take some time if there is opposition in Parliament. Saving holdups, this new regulatory body could begin licence hearings early this year.

Successful applicants would need about one year to set up, so RSTV could be in operation by late 1984.

The introduction of Cable Television (CATV) is a little more complicated. The government probably won't announce its intentions until after the Davidson Report has been considered.

Nevertheless to be viable, Cable will probably need to use our domestic satellite (due to be in service in 1985) for the supply of programmes, so we are looking at Cable's introduction in about 1986 at the earliest and if at all.

The long-awaited Cable inquiry conducted by the Australian Broadcasting Tribunal was tabled in Federal Parliament on September 7, 1982, consisting of five volumes of recommendations covering the introduction of Cable Television (CATV), Radiated Subscription Television (RSTV) and Direct Broadcasting Satellite television (DBS) in Australia.

TERMINOLOGY

"Subscription" or "Pay" television services are those services which, although offered to cable subscribers or to the general public within a certain area, may only be viewed by households who have paid an extra fee for the service and who are then eligible to use the special technical equipment necessary to convert the otherwise unuseable signals into standard television signals for viewing on conventional domestic television receivers.

The programmes distributed in the "scrambled" manner are usually high interest movies or sport but special programme material which may prove offensive to members of the public other than those to whom it is specially intended (medical lecture material and "adult" entertainment material) is also distributed in this mode in some countries.

When delivered over cable systems the services are designated "pay TV services". When delivered "over the air" by VHF, UHF, or SHF television transmission the services are designated "radiated subscription TV services (RSTV)".

In some countries alternative titles such as "conditional television transmissions", "exclusive television transmissions", and "restricted television transmissions" are in use to distinguish the scrambled mode transmissions from normal "free to air" transmissions.

RSTV TRANSMISSIONS

Depending upon the area to be served by the RSTV franchise holder, and also upon the radio frequency band made available for the RSTV transmissions, the radiated power of the transmitter may range from tens or hundreds of watts (low coverage station serving from 5 to 15 kilometres radially from the transmitter and operating on either VHF or UHF frequencies) to many hundreds of kilowatts (wide coverage station serving up to 100 kilometres radially from the transmitter). In the case of wide coverage RSTV transmissions, as is the case with conventional "free to air" transmissions, higher radiated powers are required when UHF channels are used. Depending upon the topography of the area being served, auxilliary transmissions from translator stations are required to "fill in" areas of poor reception of VHF, but especially of UHF, signals.

Although there are not, as yet, examples of the use of direct or community level broadcasting satellites to deliver RSTV transmissions to individual subscribers there are no technical reasons why this delivery method should not be used. There are many examples of the use of the transponders within fixed service satellites to distribute the programme material for RSTV services as well as for free to air and for CTV uses. This programme distribution began in North America with an unscrambled satellite transmission. The development of low cost "TV receive only" (TVRO) units for home use and the subsequent use of this equipment to "pirate" the RSTV and other TV programmes has led to announcements regarding the early introduction of scrambled transmissions from the programme distribution transponders of the North American domestic satellites.

The International Radio Regulations provide for the broadcasting of television signals in other bands than the well established VHF (47-230 MHz) and UHF (470-960 MHz) bands. There are examples of the use of SHF bands at 2.3 GHz and 12 GHz for the broadcasting of RSTV programmes where favourable terrain profiles and short transmitter to receiver paths exist.

On the other hand, the use of the 2.3 GHz band demands that there be clear line of sight from the transmitting aerial to all receiving dishes and that the radio lengths be relatively short. The 2.3 GHz band is a poor substitute for the VHF or UHF bands for use in broadcasting television signals and the particular frequencies used in the USA are already in use for other purposes in more heavily settled areas of Australia.

CODING OF RSTV SIGNALS

The earliest regular pay TV services were those distributed by the cable TV system operators. The scrambling of the signal to prevent its use by cable subscribers other than those who were paying a premium subscription for the service was relatively simple (and still is in many cable systems in the USA). The security of the system against unauthorized use being, in the first case, assisted by the fact that only cabled homes could attempt unauthorized reception. Either negative security, which involves the use of a filter at the home of all subscribers who **are not** paying extra for the service, or positive security which involves the use of a decoder at the homes of all cable subscribers who **are** paying extra for the service, have been used successfully.

In the case of RSTV the scrambling methods used are more sophisticated to avoid piracy of the transmission by non-subscribers. A modern RSTV encoding system may incorporate the following features:

- both video and audio components of the picture signal are completely re-formated.
- the audio signal is digitized, encrypted and embedded within the composite video signal.
- digital addressing data is also inserted within the composite picture signal to enable each individual receiving decoder to be "addressed" from the programme source to authorize its use in receiving the scrambled picture signal.

The studio encoding facilities must include an appropriate computer to provide the "addressability" facility but this computer may then also be used for additional management functions. The address function, when provided, not only greatly enhances the security of the scrambling system but also permits subscriber disconnects to be effected without the need to visit individual premises.

CONVENTIONAL COAXIAL CABLE NETWORK

Present day cable systems are based on coaxial cable technology and use a tree (as distinct from star) topology. Modern systems provide more than 40 channels and operate at frequencies up to 500 MHz. Two-way interactive capability is available and upstream video transmission is possible. Such cable television systems do not utilise subscriber-subscriber switching of either audio or video. Data, alarms, supervisory, polling capability are common features, however.

The cable is installed either aerially or underground depending on pole availability, local regulation and costs. Amplifiers are power fed along the cable and are installed either

aerially, in above-ground pedestals or underground.

ALTERNATIVE TO COAXIAL CABLE NETWORK

Alternatives to the coaxial cable network are based on either balanced **pair cable** or **optical fibre** technology.

BALANCED PAIR CABLE

Because of its practical bandwidth limitations due to a number of factors including crosstalk and induced noise, the pair cable is used necessarily in a different network configuration from conventional coaxial cable, viz **multipair cable** per subscriber or **remote switched**. In the first case (especially suited to low capacity systems, eg 6 channels) a multipair cable is provided to each subscriber and a simple rotary switch used by the subscriber to effect a choice of channel. With a larger channel offering, the switching takes place at a central location with the subscriber-actuated control signals being transmitted in the upstream direction, (possibly with the audio signals in the downstream direction) on one pair and the video signals being transmitted downstream over a separate pair.

Such pair cable systems have not proved favourable for high capacity systems and will not be considered further.

DIRECT OPTICAL FIBRE EQUIVALENCE TO COAXIAL CABLE TREE NETWORKS

At the present time the lack of suitable laser sources prevents application of the longer wavelength (1.3 micron) fibres to a single wideband fibre tree network topology. In the longer term (beyond 5 years), it may be possible to provide each subscriber with very wideband (eg 1 GHz) capability using a single fibre per household. Such a transmission medium would provide for video, telephony and other integrated services. Power feeding of subscriber equipment poses a serious problem, however, and suitable optical taps are presently unavailable.

HYBRID COAXIAL/FIBRE NETWORKS

At the present time there are some commercial cable television systems which utilise a multi-fibre cable in the supertrunk/trunk portion of a cable network while distribution to households is performed using coaxial cable. The multi-mode fibre (850 mm wavelength) can provide up to four analogue video channels per fibre with channel capacity limited by source linearity and fibre mode dispersion.

The application of such fibre cables is based on costs and they can be cheaper than coaxial over relatively short distances (eg 5-10 km). Beyond this distance range the bandwidth-distance product of commercial fibres is inadequate to support systems of large capacity without repeating/regeneration which places the fibre option at a disadvantage.

With such systems, optical/electrical conversion and either time-division or frequency-division multiplex equipment must be provided at an intermediate position (between trunk and distribution plant).

Installations of the above type do not provide switched telephony facilities although such would be technically possible.

CENTRAL OR REMOTE SWITCHED OPTICAL FIBRE NETWORKS

Two further alternatives utilising multi-mode (low bandwidth) fibres, eg 3-4 video channels, should be considered:

Firstly, a star connected network providing two multi-mode fibres per subscriber and centralised switching could provide subscriber access to multi-channel cable television together with other services including telephony. Practical difficulties including the requirement for very large multi-fibre cables, eg up to 2700 fibres, and the realisation of a non-blocking, full availability video switch with a very large outlet capacity.

Alternatively, switching could be located at a remote position with a high capacity (eg 50 channels) fibre cable back to a central programme source (or exchange) and two narrowband fibres distributed to each subscriber. Again, the realisation of an appropriate switch would appear the major impediment to this approach.

AUSTRALIAN NATIONAL SATELLITE SYSTEM

During the course of its Inquiry, the Tribunal, received submissions and heard evidence regarding the use of the planned Australian National Satellite System to provide programme relay facilities. These would be used for the distribution of television programmes from an originating centre (usually Sydney or Melbourne) to cable or RSTV head ends, located in many (and perhaps ultimately all) areas of Australia.

Attention was also drawn to the effect of the introduction of the homestead and community facility (HACBSS), provided on the satellite, for the distribution of the ABC television programme direct to viewers, mainly in the more outback areas of Australia. It would also be possible for other viewers currently experiencing poor reception, including those in metropolitan areas, to provide their own reception facilities to take advantage of the improved reception which will be possible from the HACBSS transmissions. Special attention was drawn to the effects upon the existing radiated free to air television services, as well as to any future cable and RSTV services, if a HACBSS type service is provided for the outback areas. This service would then become available as an additonal programme in all or most areas of Australia.

The importance of the HACBSS transmissions is that they provide a higher field strength over the Australian continent than do the transmissions from the more plentiful fixed satellite service transponders, and so permit much simpler and cheaper receiving facilities to be used at outback homesteads, or at residences in the more settled areas.

TECHNICAL FEATURES OF THE AUSTRALIAN SATELLITE SYSTEM FREQUENCY BANDS

(i) for transmissions from the spacecraft (downlinks)
Fixed satellite service (FSS: 12.25-12.75 GHz
Community broadcasting satellite service (HACBSS): 12.5-12.75 HzG.
(ii) for transmission to the spacecraft (uplinks): 14.0-14.5 GHz.

It is to be noted that the frequencies chosen, in the 12 GHz band, lead to increases in path loss and therefore lower field strengths under conditions of high rainfall, compared with the losses which would occur if operation in the 4 GHz or 6 GHz bands (as are used in the majority of the US national satellites) was to be undertaken. On the other hand there are many advantages which accrue from the use of the 12 GHz band, including:

- smaller aerial ("dish") diameters at earth terminals,
- higher aerial gains in the spacecraft,
- easier co-ordination with the operations of satellite systems of other countries operating from nearby orbital positions,
- easier co-ordination of the satellite and terrestrial microwave system usage of the 12 GHz band than would be the case with the 4 GHz and 6 GHz bands, which are heavily used in Australia for main line trunk telephone circuits.

SPACECRAFT RADIO DESIGN

The first generation system will comprise two spacecraft in orbit (located at 156 degrees and 164 degrees East longitude) with a third spacecraft available on the ground capable of operating at either of the first two orbital positions or at a third position midway between them at 160 degrees East.

Each spacecraft will be equipped with 15 transponders (11 of 10-15 watts transmitter power and 4 of nominal 30 watts transmitter power).

The receiving antenna beam will enable uplink signals to be received from any point in Australia, and a set of four spot beams will permit any four of the five beams to be used for each of the three spacecraft ie from out of the following five beams:

Western Australian
Central Australian (South Australia & NT)
North Eastern (Queensland and Northern NSW)
South Eastern (NSW, Victoria and Tasmania)
Papua/New Guinea.

Various switching arrangements are possible in connecting the transponders to transmitting antennas in the spacecraft although full flexibility to connect any transponder to any aerial is not possible. With the aerial patterns as stated the ground field strengths for the various services are:

HACBSS service (30 watt and spot beam) = 47 dBW minimum
FSS service
(i) 10-15W and spot beam approximately 42 dBW
(ii) 10-15W and national beam approximately 36 dBW.

In choosing switching combinations within satellites and between the two satellites consideration must be given to the needs of the various proposed services. In particular to the need to maintain service on all of the HACBSS 1 beams by pre-empting other services in case of transponder failures.

It is to be noted that the 30W transponders may not be switched to the National beams and that the interconnectability of the low power transponders to spot beams is limited.

BROADCASTING ISSUES

As indicated earlier, the Tribunal's attention was drawn to several issues involving the use of the National Satellite which have some relevance to the introduction of cable television or radiated subscription television:

(a) most prospective CTV or RSTV licensees stressed their dependence upon the use of a satellite transponder(s) for the distribution of programme material. In general this would involve the use of a low power transponder into a National beam. There could be cases where the nature of the programme material (sport or news) may be limited in its appeal, so that a spot beam coverage would be acceptable. The resulting increased signal level from the spot beam would reduce the cost of the receive only earth terminal.
(b) Evidence was also given of the intended use of satellite transponders, and associated privately owned receive only or two way TV terminals, for the relaying of television programmes by the existing terrestrial TV stations, as an alternative to the present uses of the Telecom terrestrial television relay system. The material

distributed would either be for instantaneous broadcast by the stations receiving the satellite signal, or for recording and later replay. In one case the material would be encoded after reception, to be re-broadcast as RSTV transmissions.

The Tribunal's attention was drawn to the likelihood that high interest programmes being distributed by the satellite may well be received by unauthorized users, including members of the public, as is now the case in North America and in Europe. Recent developments in the latter areas involve the encoding of the television programmes distributed by satellite, and such remedies for unauthorized reception may ultimately become necessary in Australia.

(c) FACTS drew to the Tribunal's attention a scheme whereby the low power transponders fed into spot beams could provide a "quasi BSS". The cost of receive facilities would be higher than would be the case for a "true BSS" using the power levels set down in the 1977 ITU Plan, and would also be about 5 dB lower than HACBSS-1. FACTS believed that members of the public, living in areas which are presently served by only one commercial programme and/or the ABC programme would readily accept the costs involved (about $100 dearer than the HACBSS receive only terminal ($1,000-$1,500) to cover an increase in aerial diameter from 1.2m to 1.8m).

(d) Information was also provided regarding the methods which might be adopted to establish a second HACBSS service to provide a commercial programme to the outback and other areas not yet adequately provided with commercial TV programmes. In particular it was indicated that HACBSS-2 would be pre-emptible should any fault occur on the HACBSS-1 service and that because of the likely use of one of the 30W transponders for the PNG television transmissions, the coverage of HACBSS-2 may not be idential with that of HACBSS-1. As the HACBSS signals will be receivable in all areas of Australia any new commercial programme radiated from the satellite as an HACBSS-2 service could affect the viability of existing terrestrial licences, particularly the regional operators and particularly if TV receive only terminals become available at costs as low as $700-$800 as was predicted by some witnesses.

Australia is on the threshold of a new era in communications. The introduction as soon as practicable of CTV preceded by the introduction of RSTV, will enable the nation to further realise its potential for social development and economic growth. The entertainment applications of the new technologies provide the short run justification for the early development. These leisure and recreation orientated uses will be the catalysts for stimulating the construction of broad band local CTV systems in the immediate future . . . so saith the Australian Broadcasting Tribunal.

EMC

(Electro Magnetic Compatibility)

If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

FORWARD DETAILS TO
VK3QQ,
Federal EMC Co-ordinator, QTHR.

AUSTRALIAN LADIES AMATEUR ASSOCIATION

ALARA

Margaret Loft VK3DML
28 Lawrence St, Castlemaine 3450.

Well our contest is all over and thank you to all who sent in logs, fifty-six this year. Slightly more than last year's result. Certificates have now been issued to the following ALARA members: VK2SU, VK3DYL, VK4ATK, VK5ANW, VK6KYL, VK7HD, P29NSF, G4EZI, DJ0EK, ZL1BIZ, 5Z4CM, KQ7Y, VK2PLG (top novice). Non Member YL's VK3KIM, G4GAJ, ZS2AA, I1MQ also received certificates as did OMs VK3XB (also top score in contest), G3VUH and SWLs VK4L40018 and ZL1-261.

A full list of the results will appear in the contest column shortly.

NEW CALLS

Congratulations to Kim VK3CYL ex VK3KIM, Margaret VK3NZD, and Narelle VK1NG formerly VK3NMV/3DNG. Narelle was at Echuca and was one of the seven licensed YLs from the area.

LIFE MEMBERSHIP

The first life membership in ALARA was very proudly awarded to Mavis VK3KS at our December meeting. Mavis has been a member of LARA, as it was then, since 1975. She has always been there on the nets ready to help in any way she can. First licensed in 1939, she was instructed by Ivor VK3XB a teacher in the country town where Mavis lived. After three months on air World War 2 intervened. Mavis and Ivor were married in 1943, and after the war amateur operations were continued from East Gippsland using a 2½ watt input battery powered set. In 1951 they moved to their present QTH and over the years Mavis has been very active in contests, mainly on CW. She is a member of the First-Class Operators Club, having been nominated in November 1966. Mavis is a member of YLRL (1950) and joined the YLISSBers in 1963.

Mavis has won many cups and certificates over the years and is always on the lookout for new YLs to add to her lists, always being helpful to newcomers and has helped many of us to gain confidence and skill in the use of the key.

SUBSCRIPTIONS

Subscriptions are now due. Valda VK3DVT, Box 4, PO Brighton 3186, our treasurer will be delighted to receive your subs — $5.00 for Australian and Overseas Air-mail. $3.00 for Overseas Sea-mail.

Valda also has teaspoons for $2.80 ea., badges $3.00 and charm for chain or key ring $2.00 all with ALARA's logo on them.

I hope to meet some of you at the Midland Zone convention at Strathfieldsay on Sunday 20th February.

Until next month 73/33/88 to all.

AR

BOOK REVIEW

THE ARRL ANTENNA BOOK

Many amateurs deplore the passing of the "homebrew" era when, mainly because of necessity, amateurs built all their station equipment. In today's society, particularly with the advent of the ubiquitous "black" (or mainly grey, now) box, many interesting and welcome newcomers have entered the amateur ranks with little practical knowledge of electronics. Transceivers, like motor cars, now go "back to the dealer" for maintenance and repairs.

But there is one facet of our hobby in which all amateurs can (and most do) involve themselves, and that is antennas. (The purist will argue that I should use the word "antennae", but I disagree.

A number of books have been written about antennas for amateur use over the years, but only one has become, for many people, almost an antenna "bible" and that is THE ARRL ANTENNA BOOK.

This 14th Edition (over 600,000 previous editions have been sold) is a worthy successor.

Whether you are a newcomer interested in discovering how and why your commercial antenna works, or you are contemplating building an HF log periodic, or even a microwave dish, this book will be of value to you. I would even suggest it is a must for the library of any amateur. In fact I will be quickly obtaining a copy to replace my well worn 13th edition.

Chapters 1 to 7 cover the theory of antennas and transmission lines, wave propagation and its relationship to antenna design, and the performance characteristics of directive antenna systems. Chapters 8 to 14 give complete data on a variety of antenna designs from HF to UHF, base station to mobile / portable, space communications to direction finding, and antennas for restricted spaces.

Copies of this excellent publication are available from Magpubs, and from leading booksellers in capital cities.

VK3ARZ

AR

Robin L. Harwood VK7RH

5 Helen Street, Launceston, Tas., 7250

One problem experienced by owners of the Sony ICF-2001 receiver is the heavy battery consumption, especially if one wants to use it as a portable. Using standard D cells, you hardly have more than two hours of operation, which destroys any portability it might have had. By using rechargeable batteries, a fairly satisfactory solution to listening is obtained, although it does depend on what cells are used. Nickel-cadmium batteries are satisfactory, but they have to be removed from the set, in order to be recharged. A way around this, is to have a spare set in the charger. But this can be expensive, and time consuming.

In the latest Andex bulletin (1) put out by HCJB's popular "DX Partyline" programme, John Stanley suggests the use of Gates lead-acid cells. These cells are totally sealed, and will not leak and damage the innards of your set. He says that Gates cells are superior to Nicads in all respects bar one. If you happen to forget to turn your set off, the cells are fully discharged, taking weeks to recharge. However, by the use of the ICF-2001's sleep timer, you can rest easy, as the set will switch off, if you do forget to turn off the set.

These cells are nominally rated at two volts, but actually deliver 2.2 volts each at full charge. The ICF-2001 works satisfactorily down to 4.0 volts, which is the discharge value of a pair of the above cells. Also the AC power supply has enough reserve to charge the batteries whilst the receiver is operating. After ten hours of use, the Gates cells will be discharged, and are easily re-charged overnight.

These cells are installed as follows. Open your ICF-2001 and remove the six Phillips screws, (one under the type AA cells) and carefully separate the front and back of the plastic case. Then locate the 1000 microfarad, 6.3 V electrolytic capacitor located between the speaker and the power-earphone-tape output jack panel. Carefully manoeuvre a small wire from each side of the capacitor to the battery compartment. Importantly observe the polarity, connecting the lead from the positive side of the capacitor to the positive battery terminal, and the negative lead to the negative terminal of the other battery. Then join the two free battery terminals together by soldering or using push-on connectors. But be warned; Gates cells do have a high short-circuit current, so **don't** short the terminals, and use small hook-up wire, to act as a fuse, to prevent shorts. Or put a 1 amp fuse in the positive lead.

The quoted price for Gates cells in the Andex bulletin, $US5.00, is applicable in America, and I am unaware if these cells are readily available here in Australia, although in Europe they are known as Gates-Chloride.

While turning around on the 13 metre band, I came across the North American Service of Radio Moscow on 21.475 MHz.

It can be easily heard here in Australia at 0200 UTC, naturally in English. Presumably to North America's West Coast, it is heard at the same time as the World Service on 21.530 MHz, and at the comparatively same strength, indicative that they are both located in the same area. Yet, I wonder if they are beaming their North American Service, to cover a wider area, for the presentation is more polished, and not so riddled with cliches as is the case with the World Service. And it is an up-beat tempo as well. In our winter months is the usual time when we can hear the North American Service, especially on the 25 and 31 metres allocations.

Another station, this time in Greece, is now easily heard in Australia on either 9.420 or 15.050 MHz. Programmes are for the most part in Greek, naturally, with plenty of Bazouki music, that I do confess I'm partial to. In some target areas, they do conclude with an English news bulletin. However, if you are trying to compile a reception report on it, many of the popular tunes do pop up on the Greek Variety Hour, a weekly television show, produced at WIN4, in Wollongong, and shown on some provincial channels, which could aid identification.

The use of these two frequencies, 9.420 and 15.050 MHz, must have been influenced by the success of the BBC World Service, who have utilized 9.410 and 15.070 for many years. Propagation on these channels is very good into Europe and America.

Which reminds me, recently the New Zealand Meteorological Office commenced transmitting facsimile signals on 9.410 MHz. This channel has been used by the BBC World Service for quite a number of years, especially beamed to the Pacific area. Quite naturally, longtime BBC listeners across the Tasman were up in arms. It even made the news headlines, current affairs programmes had interviews with Arthur Cushen, with excerpts of the QRM. All this had the result, that the Minister of Science directed the NZ Met to use another channel to transmit their facsimile. Would it not be wonderful if Australia's amateurs and shortwave listeners could rise up and complain about the broadcasters transmitting programmes in exclusive amateur allocations. For example, on 7.025 and 7.095 MHz in the evening hours, or 14.320 MHz, where an obscure European country (Albania) transmits Chinese programmes at 0500, 1100, and 1300 hours UTC daily. And the best way they can register their complaint is through their Intruder Watch Co-ordinator. There are plenty of other non-amateur signals within the exclusive allocations to report. If we don't support IW, we will never get these intruders off our bands.

Well, that is all for this month. In next month's issue, I will be reporting on my trip to Queensland and Victoria, among other things. Until then, the best of 73's and good dxing!

— Robin

AR

NEW

CHIRNSIDE VERTICAL ANTENNA

Model

CE-5SS

5 band self supporting

Unlike our Model CE-5B, this vertical needs no guy ropes and stands only 5 metres high, is very easy to erect and can be disassembled again into four pieces in about 45 seconds.

YES, ONLY $89

Just the antenna to have in the boot of your car or caravan for quick portable operation and for JUST $89 you can afford to have one for that occasion.

Specifications

Frequencies . . . 80M to 10M.
Impedance . . . 50 ohms at resonance.
Power handling . . . up to 1 KW PEP on 20-15-10M, up to 400 watts PEP on 80M and 40M.
¼ wave length type operation.
Termination . . . SO-239 socket.
Weight . . . approx. 3 kg.

GET ONE DIRECT FROM OUR MAIL ORDER DEPT.

$89 plus freight charges.
Bankcard welcome.

CHIRNSIDE ELECTRONICS PTY. LTD.

26 Edwards Rd, CHIRNSIDE PARK, LILYDALE, 3116

Phone (03) 726 7353

WO818

VK2 MINI BULLETIN

Athol Tilley VK2BAD
PO Box 1066, Parramatta, NSW, 2150.

ANNUAL GENERAL MEETING

The Annual General Meeting of the WIA NSW Division will be held at 2 PM on Saturday, the 26th of March, 1983. The venue is the auditorium of the Granville RSL Club, located at the corner of William Street and Memorial Avenue, Granville. Full notice of the meeting will be posted in early March to all FINANCIAL NSW members.

Persons wishing to stand for election to Council may obtain a form from the office. Please note that only Ordinary i.e. Full Members are able to nominate and vote and that nominations must reach the office no later than the 23rd of February, 1983.

The duties of council involve the management of the division's affairs. These are covered by articles 45 to 77 inclusive. Perhaps this is the year that you wish to volunteer some of your time and energy to assist your division of the WIA and fellow members. The duties of a councillor are not particularly difficult nor time consuming, especially if all members of council are prepared to contribute their fair share of the workload.

DIVISIONAL OFFICE

The office is open each weekday from 11 AM to 2 PM and additionally between 7 PM and 9 PM on Wednesdays. The phone number is 689-2417 and all correspondence should be sent to PO Box 1066, Parramatta, NSW, 2150.

The office is located on the first floor of 109 Wigram Street, Parramatta.

COUNCIL REPORT

Divisional Council met on the 12th of November at the headquarters of the NSW Division at 109 Wigram Street, Parramatta.

After consideration of Federal WIA proposals to promote World Communications Year 1983, it was decided that the division would give $2,000 to the Federal fund to promote WCY 83. Assistance is required at a state level for supporting PR work and we require volunteers who might be able to help in this campaign. Ideally there would be three volunteers, one in each of the major population centres. Their role would be to combine federally supplied material with locally produced material so as to produce items of interest for the local press and other media. If you wish to assist or have suggestions, please contact the division.

Jo Harris, VK2KAA, was appointed as the Divisional Historian. If you have any items such as photos, minutes or other records that tell the history of this division, Jo would appreciate you either donating them or loaning them so we can copy them.

Items discussed at the 7th Conference of Clubs were considered for action by council. These are listed in the report of the conference with details of council's action to date.

Gordon McDonald VK2ZAB resigned from council.

Stephen Pall VK2PS presented a federal report and WCY 83 and the length of federal tapes were discussed.

Tim Mills VK2ZTM presented a repeater report and applications to establish repeaters from the North West ARG, Orana Region ARC and OTC (A) ARC were approved. A proposal to change the sponsorship of the Sydney Slow Scan repeater was also approved. These applications will now be forwarded to DOC for their approval and processing, following which licences will be issued.

The December council meeting was held at Parramatta on the 9th of December.

Council resolved that David Thompson, VK2BDT, be appointed as the Divisional Treasurer. David will prepare the annual accounts of the division.

Nineteen new applications for membership of the NSW Division were accepted.

Four entries were received for the division's Home Brew competition. One entry was of a particularly high standard and easily won the section for projects which were "Completely Home Designed and Built". Other entries displayed a high standard making a final choice difficult. After considerable discussion, placings were decided in the "Home Built from a Published Design" section. The applicants have been advised in writing as to the results and awards and presentations will be made at the Annual General Meeting of the division, to be held on the 26th of March, 1983.

Council was pleased to note that the VK2 Division had moved to second place in the Remembrance Day contest. Thanks to all those members who participated and returned a log entry. Merit Certificates have been sent to the top VK2 scorers in the various sections.

The division now has the VHS video tapes of titles from the WIA Video Tape library. These were dubbed by John Ingham, VK5KG, the Federal WIA Video Tape Co-ordinator.

Council decided that the loan conditions were: 1. Only available to Affiliated Clubs, 2. One month borrowing period, 3. Postal borrowings by written request only, 4. Tapes picked up personally must be signed for, 5. Only one tape at a time may be borrowed.

It was decided that $5,000 be invested in AGC Debentures for a period of at least three years. The loan to the Westlakes ARC to purchase a computer for QSL Bureau use was reduced by $300, in accord with a previous motion of council.

REPORT — 7TH CONFERENCE OF CLUBS

Representatives of thirteen clubs and the NSW Divisional Council met at the clubrooms of the Westlakes Amateur Radio Club at Teralba to conduct the 7th Conference of Clubs.

These clubs were: *Avondale represented by R. Cottier, VK2ERC, with 1 vote; Bathurst by N. Wilde, VK2DR, with 1 vote; Castle Hill by C. MacKinnon, VK2DYM, with 2 votes; Central Coast by S. Dooger, VK2KSD, with 5 votes; Coffs Harbour by R. Fletcher, VK2BKV, with 2 votes; Hornsby by B. White, VK2AAB, with 2 votes; Liverpool by J. Ditfield, VK2KDJ, with 3 votes; Orange by*

Delegates in session at the 7th Conference of Clubs, Teralba.

Rick VK2BKV receiving the "Dick Smith Educator of the Year" award from Susan VK2BSB.

R. Wilson, VK2BRC; with 3 votes; Oxley Region by L. Smith, VK2LS, with 3 votes; St George by F. May, VK2PIO, with 8 votes; Taree by J. Farley, VK2ZMR, with 1 vote; Wagga by N. Russell, VK2KNR, with 3 votes; Westlakes by P. Lorentzen, VK2ATR, with 10 votes; Illawarra by D. McKay, VK2DMR, with 8 votes.

The NSW WIA Division was represented by councillors S. Brown VK2BSB, S. Pall VK2PS, J. Pages VK2BYY, A. Tilley VK2BAD and P. Jeremy VK2PJ.

Keith Howard VK2AKX was elected as the meetings Chairman and Milton Hall VK2DCU was elected as meeting Secretary.

As the minutes of the 6th Conference had been previously widely circulated to all Affiliated Clubs, the minutes were confirmed as printed. The meeting then considered business from the circulated agenda.

ITEM A, concerning duty free availability of amateur radio equipment was amended to read *"That Australian amateurs be permitted to obtain free of sales tax, amateur radio equipment to an annual value of up to $1,000"*. The motion was carried and this division will now put it as an agenda item to the next WIA Federal Convention.

ITEM C requested that the WIA purchase good quality WIA emblems for use on the inside of car windows. Council is presently investigating design and costing of these emblems.

ITEM D, suggesting that the twice yearly conferences be changed to an annual conference, along the lines of the Queensland "workshop" system, was carried. This will now be considered by council after investigation.

ITEM F recommended that even numbered Conferences of Clubs should discuss and vote on WIA Federal Convention items. These discussions would take place as general business and would guide the VK2 Federal Councillor as to the views of members.

ITEM G recommended that the 8th Conference of Clubs be held at the WIA NSW Division building at Parramatta.

ITEM H recommended that QSL cards for rare locations be pooled with other VK QSL bureaux for economy. This means that instead of each bureau posting off small, uneconomic packages, all VK cards can be sent in one package to the rarer DX countries resulting in a speedier and cheaper service.

ITEM J requested that DOC advise examination candidates clearly of their results. Examples were produced where the official notification gave no indication at all as to how the candidate performed in some subjects. Council has referred this matter to WIA Federal so it can be discussed with DOC.

ITEM K recommended that QSL cards held for both members and non-members by the bureau and unclaimed be destroyed after two years after receipt at the bureau. Some amateurs have not collected their cards for many years, resulting in a storage problem of their unwanted cards. Council has adopted this recommendation and advised the VK2 QSL Bureau to implement this policy.

ITEM L recommended that the Australian Novice Contest be given improved publicity. Council notes this and is seeking a volunteer to act as the Contest Publicity Officer who will write short publicity items for broadcasts etc.

Under General Business, the Divisional President Susan Brown VK2BSB presented graphs comparing results by NSW examination candidates with those of other states. She reported on discussions with the Sydney branch of DOC on this matter. The conference moved that the WIA NSW Division continue its efforts on behalf of candidates for NAOCP and AOCP examinations in an attempt to remove the apparent bias in NSW results.

The conference expressed its appreciation to the Westlakes Amateur Radio Club for the conduct of the VK2 QSL Bureau.

Motions congratulating the current executive of the WIA NSW Division for the competent manner in which divisional business has been conducted and for the professional manner in which the transition of the divisional headquarters to Parramatta was effected were carried unanimously.

A proposal to allow special interest groups affiliated with the NSW Division use of the division's facilities for their meetings was lost.

The Westlakes Amateur Radio Club was thanked by the conference for its provision of meeting rooms and conduct of the 7th Conference of Clubs.

Divisional President Susan Brown VK2BSB then presented the "Dick Smith Educator of the Year" award to Rick Fletcher VK2BKV of the Coffs Harbour and District Amateur Radio Club. Sue commented that Rick had conducted eight consecutive classes for the novice licence in the Coffs Harbour area. The presentation of the award was greeted with acclamation.

Susan Brown then presented an award of a certificate and a 10 metre SSB Transceiver to the club which had achieved the highest percentage increase in WIA membership amongs club members since the last conference. The award was accepted on behalf of the Hornsby & Disctrict Amateur Radio Club by their President, Barry White VK2AAB.

The 8th Conference of Clubs will be held on Sunday, the 17th of April, 1983 at the WIA NSW Division building at 109 Wigram Street, Parramatta. The host club will be the St George Amateur Radio Society.

Conference Chairman Keith Howard, VK2AKX thanked all delegates for their attendance and declared the 7th Conference of Clubs closed.

As a finale, the QSL Bureau computer selected the winners of the "Westlakes Tryfecter", the results appearing in the December issue of AR. Proceeds from this contest were used to cover some of the cost of the computer purchased by the club for use by the VK2 QSL Bureau.

Divisional Council wishes to congratulate the Westlakes Amateur Radio Club for the preparation and conduct of the Conference of Clubs.

ORANGE AMATEUR RADIO CLUB MEETING

The club Christmas party for 1982 was held on the 27th of November, at the QTH of Vicki VK2EVM, in Blayney.

Approximately twenty-five members, their wives and families attended from the Cowra, Forbes, Canowindra, Bathurst, Oberon and Orange areas. A thoroughly enjoyable, pleasant and informal gathering was held, at which Tony VK2KTO was wished bon voyage, as he is leaving the district and moving to the Tamworth area. A very big thank you is extended to the

Some of the happy throng enjoying the OARC party.
Those pictured are, from left to right: John VK2AMV, Heather Drady, Wally VK2DEW, Neville VK2DR, Branda Wilde, Ian VK2KMA, Frank VK2ZFE, Bob VK2DSM, Diane VK2DZM, Tony VK2KTO, Vicki VK2EVM, Ross VK2BRC, Trevor VK2ZNU, Ruth Salmon, Martyn VK2DLD. The front row is, left: Peter VK2DBI and right: Bill VK2BVW.

Marsden family of Blayney for providing a pleasant and hospitable venue and to those who attended, despite other commitments.

From Ross VK2BRC, photo by courtesy of John, VK2AMV.

COMING EVENTS

John Moyle NFD Contest: 12/13 February.
Gosford Field Day: Sunday 20th February at Gosford Show Ground.
Nominations for election to Council and agenda items for AGM close: 23rd February.
Annual General Meeting, WIA NSW Division: 26th March at 2 PM.
Urunga Convention: Easter Weekend, 2/3 April.

NSW members and clubs are invited to submit news items for inclusion in these notes to: WIA NSW Division, PO Box 1066, NSW, 2150. Items for April AR must reach us by the 21st of February.

Athol VK2BAD

AR

TWO METRE REPEATER

Keith Perry P29QA of Kieta, Bougainville commissioned a two metre repeater recently which receives on 146.400 MHz and transmits on 147.000 MHz. The repeater is mounted on the Postal and Telecommunications tower at Arawa.

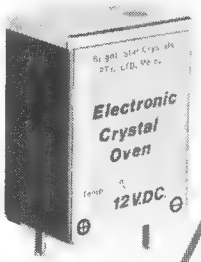
AR

★ BRIGHT STAR CRYSTALS

Specifications, Dimensions and data sheets available on request

BULK ORDERS: In addition to our normal range we can supply quantity orders (100 up) at very competitive prices. All we ask is 50% of cost with order balance 30 days.

DELIVERY: 5-6 weeks from receipt of Order. Ring for quote: (03) 546 5076. Telex: AA 36004.



CRYSTAL OVENS

NEW NSW AGENT:
APP Master Communications,
Sydney (02) 682 5044

WATCH CRYSTALS
OVERN OSCILLATOR UNITS
CRYSTAL UNITS
FOR QUARTZ
CRYSTAL CLOCKS

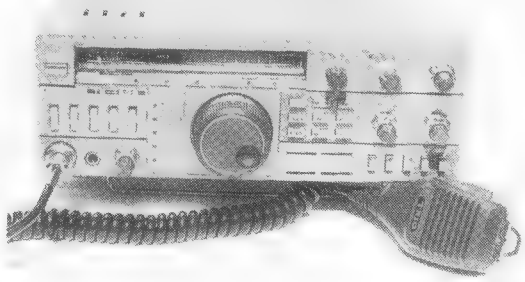
CRYSTAL MARKER UNITS

BRIGHT STAR CRYSTALS
35 EILEEN RD., CLAYTON, VIC.
ALL MAIL TO: PO BOX 42, SPRINGVALE 3171

Phone MELBOURNE (03) 546 5076

Andrews Communications Systems

KENWOOD FROM SOMEONE YOU CAN TRUST . . .



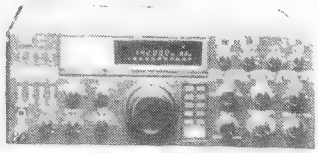
TS-430S . . . $895

OPTIONAL PS-430 AND SP-430 DUE IN SOON

WITH FULL 12 MONTHS WARRANTY. BUY DIRECT FROM IMPORTER. PLENTY IN STOCK!

NEW! YAESU FT-77 . . . . . **$660**
100 W output mini HF SSB-CW — (opt. FM) transceiver.
10 W output **YAESU FT-77S** **$550**
FT-102 base station 160-10 m, WARC, VBC, notch, shift, 101 dB d.t., dual meters, 3 x 6146Bs . . . **$1,050**
SP-102 $69, FC-102 $289, FV-102DM $369, YM-38 $40
FRG-7700SW 2-29.99 MHz receiver **$439**
"FRA" $55, "FRT" $75, "FRV-B" $119, Memory $119
DISCONTINUED FT-707, Only . . . . . **$665** Last few
FC-707 $125, FV-707DM $229, YM-37 $15, YM35 $28
FT-230R $339, FT790R $445, FT-708R $329
Full 12 months warranty on our imported YAESU, of course!

TOP-LINE KENWOOD TS-930 SA MK II



Full 12 months warranty. Buy direct from Importer and save . . .

WITH AUTO TUNER

$1,625

Why pay over $1,800?

only **$1675**

HF SSB/CW/FSK/AM (NO FM) Transceiver with gen. cov. rec.
Also in stock . . . MC-6058 $75, TR-3500 UHF h/h $299
Due in soon . . . TS-430 V $795, R-2000 $595 ~~$650~~.

ICOM

WE WILL NOT BE UNDERSOLD ON ICOM! BEWARE OF ICOM WITHOUT 12 MONTHS WARRANTY!

IC-720A	$1050	IC-740 . . .	$865
IC-2KL . .	$1349	IC-R70SW	$695
IC-AT500	$419	IC-505 . . .	$419

Some ICOM items available on indent order only.

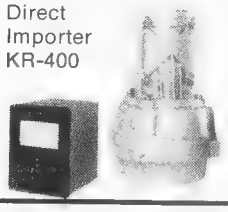
Factory authorised TOKYO HY-POWER Importer HL-20U $109, HL-45U $209, HL-90U $349, MICRO-7 $199. We will not be undersold on T.H.P. and JUMBO! Spoken type 250MKII in stock $219 w/improved pre-amp. ALINCO ELH-230 $69 ~~$89~~. Telereader CWR-685E $1,040.

"KEN" ROTATORS

KR-400 medium duty, 28 V	**$129**
KR-400RC w/Round Controller	**$149**
KR-600RC heavy duty w/RC	**$219**
KR-2000RC super heavy duty	**$429**

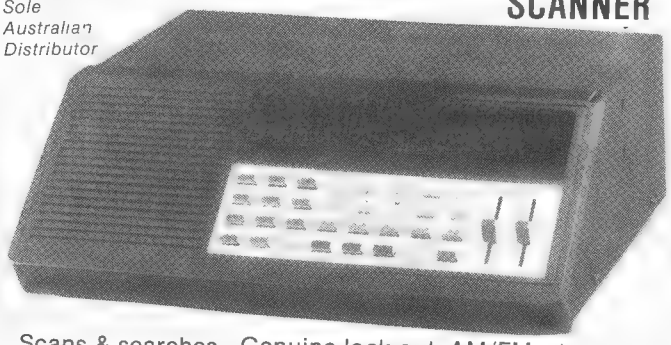
Top & bottom mast clamps included

Direct Importer KR-400



SAIKO SC-7000 INCREDIBLE 70 CH. SCANNER

Sole Australian Distributor



Scans & searches. Genuine lock out, AM/FM, etc, etc.
Why pay more for a lesser scanner? Buy the Best!
AMAZING 2.5 kHz STEPS ON AUSTRALIAN LOW BAND, HIGH BAND! HIGH SENSITIVITY!
60-90, 108-136, 140-180, 380-520 MHz.

"STATE OF THE ART" . . . $449

CALL (02) 349 5792 or 344 7880 NOW!

SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY N.S.W.

Call For Closest Authorised Dealer To You!

THE MAIL ORDER SPECIALISTS Write to: P.O. BOX 33, KENSINGTON N.S.W. 2033

VK3 WIA NOTES

"INTRUDER WATCH"

Steve Phillips VK3JY is the new Intruder Watch Co-ordinator for VK3. Co-ordinator is the KEY word.

It is the duty of Amateur Radio operators to log and report all intruders on our bands. Unless this information is sent to Steve, he will have nothing to co-ordinate.

Report forms and identification tapes will be available from Steve or the VK3 office early in February '83.

CONVENTION MARCH 18TH TO 20TH 1983.

The Victorian Division Convention 1983 will be held by the Eastern Zone at Moondarra Reservoir about twenty-five miles north of Moe in Gippsland. This is about an hour and a half's drive from Melbourne. It will be a family weekend at a reasonable price.

The programme includes: trade display, hidden transmitter hunt, home computers, technical tests, children's activities including treasure hunts and films, and the first round of the annual morse competition. *There will be no radio throwing contest!*

The convention will fully catered with lots of good food cooked by Eastern Zone amateurs with your assistance.

Bring your QSL card for the QSL tree.

The gathering starts after tea on Friday with supper for the travellers. Others will arrive on Saturday. Peter Wolfenden VK3KAU will speak on matters of interest after the Saturday night feast. The convention will wind up on Sunday afternoon after an auction and sale.

The camp, at the foot of the Baw Baw's, overlooks the Moondarra Reservoir and has a swimming pool. The accommodation is in two and three bedrooms.

Victorian amateurs received an insert in last month's AR. If there was no insert in your AR or if further forms or information is required, or if you have something to offer the convention, ring Stewart VK3BSM on (051) 27 4229, or write PO Box 339, Moe, Victoria 3825.

Accommodation will cost $7.00 a night per adult and $5.00 a night per child between 4 and 15 years inclusive. Registration for the weekend will be $25.00 for adults, nothing for children, and $15.00 for pensioners and holders of health benefit cards. A heap of sleeping, eating, and activity at a very reasonable cost.

1982 2-METRE SCRAMBLE

Victorian President, Alan VK3BBM presenting the "Vicom" trophy to the winner, Robert VK3XQ at the December general meeting.

MORSE COMPETITION

It is intended to commence a perpetual trophy for competence in Morse Code. It will be hoped to eventually extend this competition nationwide and in each year have a winner declared at each State Convention, the highest scorer being inscribed on a perpetual trophy.

Some general points on the competition are suggested:

1. The competition should be open to amateurs and non-amateurs.
2. The holder of a qualification in morse code such as an amateur or commercial licence could only enter the competition at a level above any licence held by that amateur.
3. Testing on transmission would only be undertaken at the highest level achieved by a competitor. The implication of this is that there would be no certificate given if a contestant could not reach competence in transmission at the speed he could reach in receive.
4. As competitiors fall out in receive they will be tested to transmit at their highest receive speed achieved and certificates given.
5. It is intended that receive speed steps should be 5, 7.5, 10, 12, 14, 16, 18, 20, 22, 24 and above words per minute.
6. The examination should be set under the conditions of a DOC examination. This includes a small test transmission and no correction time allowed.
8. The Department of Communication will be asked to co-operate in assisting with this competition as it should be a stimulus to raising the level of competence in telegraphy.

AR

MIDLAND ZONE CONVENTION

The Annual Midland Zone Convention will be held at the Strathfieldsaye Hall on Sunday 20th February 1983 from 10 AM. Lunch will be available and the usual trade displays, also a trading table section. So if you want to have a clean up of all your "junque" bring it along, it may be just what someone else is looking for. Everyone is most welcome and we look forward to meeting you. Enquiries to Margaret VK3DML, QTHR, talk in will be on VK3RCV ch. 11 147.750 input 147.150 out.

Meetings of the Zone are held on the 3rd Friday night monthly at 8 PM at the Eaglehawk and Long Gully Community Health Centre, Seymoure St, Eaglehawk. Office Bearers for 1983: President Don Hogg VK3XBL, V/Pres. George Loft VK3AGM, Secretary Margaret Loft VK3DML, Treasurer VK3APB, Ass. Secretary Doug Fairbairn VK3KIT, Committee Ross Pittard VK3YXR (ATV) VK3BL (2 m rptr), Bill Kelly VK3XO, Max Williams VK3APB, Barry Lakey VK3BL.

AR

CUSTOM WOUND TRANSFORMERS

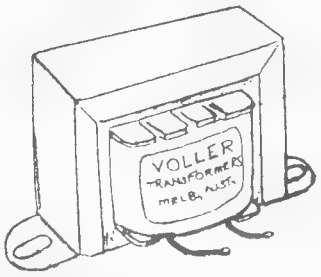
LOW COST HIGH QUALITY

Consult us about your special requirements in transformers, power chokes, r.f. chokes, etc.

Sample prices:

240V — 1400V @ 0.4A .. $82.56 Tax incl.

240V-8V @ 10A $28.32
2 x 15 @ 1.5A Tax incl.



FREIGHT EXTRA

PLEASE RING (03) 551 1452
VOLLER TRANSFORMERS PTY. LTD.

16 PIETRO RD., HEATHERTON. 3202

VK4 WIA NOTES

Bud Pounsett VK4QY
33 Lasseter Street, Kedron, Qld., 4031

There are some very important events coming in the first quarter of this year. First we have a new council to get working. There will be a mixture of old and new faces this year as there is most years. New councillors can be assured of a most rewarding year. The business side of the division ran very smoothly last year and should continue to do the same this year. This will allow councillors to spend more time debating important issues that will arise, and arriving at correct decisions.

Next we have our Radio Club Workshop, an event that grows in interest and importance year by year. This is the chance for club representatives from all over Queensland to get together formally and informally. This year, with few motions to occupy their time, delegates will be able to form into working groups and discuss items of importance to further amateur radio in Queensland and indeed, Australia. The workshop is an expensive weekend, but every cent spent is putting profit into our future.

After the workshop comes the Federal Convention. Our two federal councillors will go to Melbourne very well briefed by the Radio Club Workshop, this being one of the aims of the workshop.

BRISBANE CONVENTION

The whispers are getting louder about a mid-year Convention / Hamfest / Amarama. The venue will be Indooroopilly and a prominent Brisbane club will be the sponsor. Sometime in May?

The Media get together in Brisbane. The day after the Gold Coast Hamfest last November, Queensland Division members enjoyed a picnic at Mt Coot-tha. Bruce Bathols, VK3UV, AR Editor was there. Pictured are from left, Bruce, Jack Gayton, VK4AGY (VK4WIA Station Manager) Bonnie Pounsett, XYL of VK4QY (The Voice of VK4WIA) and Bud, VK4QY (VK4DIV News Editor).

Bud VK4QY

FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW
59 Albert Street,
Clarence Gardens SA 5039

They say that old habits die hard, so I suppose that explains it. Explains what? Last week I had our former Intruder Watch Co-ordinator at my QTH, asking me to please publicise the fact that he is no longer our Divisional IWC AND HASN'T BEEN — FOR 12 MONTHS. Our new IWC is Colin Ralph VK5KCR who is QTHR in the latest call book listings, as well as appearing on page 62 under the IW heading. And for the cynics who are about to point out that the callbook has only been out a few months, I will add that Colin's name and phone number have been in the front of our local 'Journal' for at least eight months. We are constantly being told that very few people bother to report intruders and yet here were at least three people who did bother, and two of them had to make STD calls to do it. So please, in future give Colin a ring — he was only saying the other week that he doesn't get many!

Quite of few things have happened within the division over the past few months. We now have an editor for our local 'Journal' — Graham Iles VK5KGI was the brave man who accepted the challenge. We thank you sincerely, Graham, and wish you every success. I am sure that Graham would appreciate any articles and photographs (via PO Box 1234; GPO Adelaide, 5001) and technical articles would be very much appreciated by our Technical Editor, John VK5NX.

The alterations to the constitution as published in the October 'Journal' were all passed at the November meeting, though not without a great deal of discussion on some clauses. It is hoped that you will all receive a copy of the amended constitution, as part of your February 'Journal'.

We now have our first UHF (voice) repeater on air, and most of the credit must go to Mark VK5AVQ. The callsign is VK5RVP and it is situated on Mount Lofty, next to VK5RAD (Ch. 8). The I/P is 433.525 MHz, and the O/P is 438.525 MHz.

Finally, don't forget those Agenda Items for the Federal Convention as time is running out.

Forthcoming meetings will be held on the 22nd of February and 22nd of March, details of speakers not known at the time of going to press. March 29th will be a Buy and Sell Meeting — starting at 7.30 pm.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

37 Landsborough Way,
Padbury,
WA 6025.

Dear Sir,

Now that the RD contest and the results published I feel that we should now evaluate the contest and rules as applying in 1982.

I know how much work was put into the formula and appreciate that the weight factor is there to encourage participation but I feel that the present scoring system will kill the contest because of the following:

1. SSB and CW/RTTY contacts counting 1 point each thus discouraging the longer CW/RTTY contacts — in fact the contest manager virtually states that because the CW/RTTY is a small contribution to the overall scores those contacts are insignificant.

2. No points increase for distance, therefore what is the point of say a VK4 or VK2 trying to work a scratchy signal from VK5 or VK6 when he can work Q5 signals from adjoining states on 80m.

3. Contacts on VHF being worth the same as HF contacts and those contacts being able to be repeated every hour so why work through QRM to score what used to be a reasonable amount by carefully identifying stations, checking for duplicates in case you may have worked that station some hours ago and then making the contact when all you need do is monitor a simplex VHF channel once every hour, work through the list and total up the score. This is very evident in the scores of the top stations.

My suggestion therefore is to retain a weighing factor to increase participation, give double points for all non SSB contacts TO ENCOURAGE THESE MODES, give extra points for distance (surely the idea of contests is to prove ones equipment) and, permit the working of stations on VHF on the same basis as HF that is once only — this should stop the RD contest — the friendly contest — developing into a frenzied numbers collecting game which is all too evident.

Finally, instead of vague inuendoes as to the reasons why logs haven't been included in the scores, surely common courtesy should dictate that amateurs who have participated in the contest and submitted a log should be informed either by letter or in print of the reasons their logs have not been included.

Yours faithfully,
F A Parsonage VK6PF

25 Scrub Road,
Coolum Beach, Qld., 4573
15.11.82

The Editor,
Dear OM,

'AR' COVER FORMAT

Probably I've left it a bit late, however I wish to raise the probably minor matter of the background colour of 'AR' covers.

Most years you have kept to one colour for the year, however once in a while the system goes crazy and covers come out 'hetero' as to colour.

I, for one, and I feel quite a few other members find it convenient for "filing and finding" to have all of one volume in one colour. It would probably be convenient for printer stocking also.

However, the only reason for divergence I can see is possibly 'change' on the public bookshelves to attract interest.

As I would guess that your largest volume of sales is to the VK-fraternity I would request that you give the above matter some consideration.

Yours — 73 etc.,
John Stone, VK4NZ

ARTICLE A 202

25 Beecroft Parade,
Currarong, 2540
15th. November, 1982

The Editor,
Dear OM,

I have been a licensed amateur with the above call since 1936. I had a long lay off and re-activated last year.

However, I encountered an experience (which may be of interest to you) on 13th November which in retrospect made me wonder if amateurs really realise the immense responsibility which can be thrust upon them unexpectedly and do they know how to cope with it. Also, are they aware of the correct and most expedient procedures to adopt?

The following is a very contracted resume of my experience.

On 13th November I called CQ on 14.175 MHz at 0930 local time. A very weak signal Q4-5 S2-7 with lots of QSB and a voice with a strong accent replied giving the callsign HP2XBP/MM advising that they needed urgent medical help and advice — could I get a doctor to my transmitter.

They had a person on board unable to breathe and were applying mouth to mouth resuscitation.

My QTH is in a small country village on the coast with the nearest doctor 35 km distant. So it was impractical to do this.

Because I live the same distance from the naval station HMAS Albatross, I rang the Officer of the Day for help, who I understand, rang the Marine Surveillance Centre in Canberra. Canberra then rang me to check my bonafides and to find out the nature of the problem.

During all of this I am keeping up contact with HP2XBP who was stressing their crisis situation.

I advised Canberra the nature of the problem and that resuscitation had been in progress for quite some time and that the best fix I could obtain was that the people in trouble were in a small unidentified bay in Vanua Levin in the Fiji Islands.

Canberra advised Fiji, however, naturally, Fiji authorities said they need co-ordinates. I could not get these. Even though I gave them the frequency of transmissions, local skip would have prevented contact!

I am still, during this time, maintaining contact and also calling for additional aid from any amateur able to assist — negative.

I was eventually able to get a message from Canberra which I passed on to HP2XBP that Fiji was aware of the problem and were trying to help.

Time elapse is now 2½ hours and mouth to mouth is still being applied.

Around 1200 hours local I lost contact, but regained it a little later to hear HP2XBP talking to someone else. The reception was poor but the gist of the conversation suggested that help was at hand.

Today — Monday 15th Canberra rang me to advise that the patient was a baby and that the Nadi authorities had taken control of the situation.

In retrospect, I asked myself these questions:

(a) Could I have done more to help?

(b) Did I handle the situation correctly?

(c) Was there a more expedient procedure to follow?

(d) Do other amateurs have knowledge of procedures in crisis situations?

(e) Was there a need for the WIA to maybe publish or update procedures for such situations? (maybe even a loose leaf insertion in AR).

Again, on reflection only this morning, I said to my XYL, I may never know if I did the right thing and that my actions were beneficial in an emergency situation.

In fact, the responsibility for the part I played was weighing fairly heavily, however, as intimated earlier in this letter, the authorities in Canberra, very thoughtfully and kindly rang me this morning, advised me of the outcome and put my mind to rest.

Dear Editor,

Is there a lesson in this for all of us related to our responsibilities as amateurs caught up in unexpected situations?

Is there a need for us to be alerted as to the correct and most expedient manner to handle like situations?

Finally the object of this letter is actual case information which may be of use in some future situation.

73
Alex McMurray,
VK2AEX

26 Karoonda Road,
Booragoon 6154
13-11-82

Dear Sir,

Referring to the item in the column "How's DX" (AR Nov 82) on the subject of using the AX prefix. I would like to add some comments to this topic.

There might be a perfectly natural explanation why so few Australian amateurs made use of the AX prefix during the Commonwealth Games — perhaps some feel like I do.

New or unknown prefixes will always attract attention and the use of unknown "pseudo-exotic" prefixes — like AX — by stations who are not on the most wanted list will also make other amateurs tune up their transmitters and follow with determination to work that "new" country. At least until they find out that it is no new country at all, but one that they have worked many times before. The nett result is disappointment. After all, changing two letters in a callsign does not make it more difficult to work a country.

Finally, the VK who did not know about AX may be excused. He might have been newly licensed and perhaps not a member of the WIA and therefore not in possession of AR or those other privileges which come with the membership.

Yours faithfully
Walter Haenel

Dear Sirs,

I take the liberty of turning to you in a rather difficult matter and trust that you will see my point.

I am an East German radio amateur intending to emigrate with my family to

Australia because of political reasons. For this purpose I contacted the Australian embassy to the GDR in Berlin and Mr David Couch of Perth, WA, whom I know as a radio amateur under the call sign VK6WT, and asked him if he would nominate me for entry to Australia as this was suggested to be the best way to get to Australia. As my sponsor he would have been liable for our first accommodation and our first expenses until we would have got started. This is to ensure that we do not become a burden to the Australian society. On the other hand there is the restriction for us to convert our money into foreign currency when leaving which means that we can take with us only a few personal things, maybe some valuables too. So the difficulty for us is to find an individual or family who is able and willing to support us financially until we can manage things ourselves. After thorough consideration Mr Couch now told me that he would not be able to do this and therefore could not go on with my nomination. As a final possibility he suggested to turn to you requesting to circularize the divisions of the assistance I require so that my appeal would come to the notice of many Australian radio amateurs. I hesitated in following his advice but it occurs to me that this is my last and only chance left. So that is the reason why I ask you to help me solve my problem.

To introduce myself I must say that I was born in 1943, attended secondary school till 1962, worked as a grinder for a year, then did my army service and finally studied from 1965 to 68 at the Nautical College at Wustrow where I got the degree of a maritime radio engineer. Afterwards I worked as a ship's radio operator with the merchant fleet until 1971. At the end of that year the State security service refused to let me go to sea anymore out of political reasons. I was not allowed to work in my job and had to look for a new career as an engineer in the technical department of a furniture factory where I still work.

My family consists of my wife, born also in 1943, who learned the trade of hand-weaving. We have two children, both boys, aged 8 and 15. We are all in a very good state of health I have a good knowledge of English. My family speaks only little English yet. I am a radio amateur since 1960.

Further details about my qualification and my person may be obtained from Mr David Couch, 9 The Grove, Wembley 6014, Western Australia. He also possesses duplicates of my certificates.

Yours faithfully,
H W Kohler

Editors Note:
Any person interested in the above may write to VK6WT at the address mentioned above.

—VK3UV

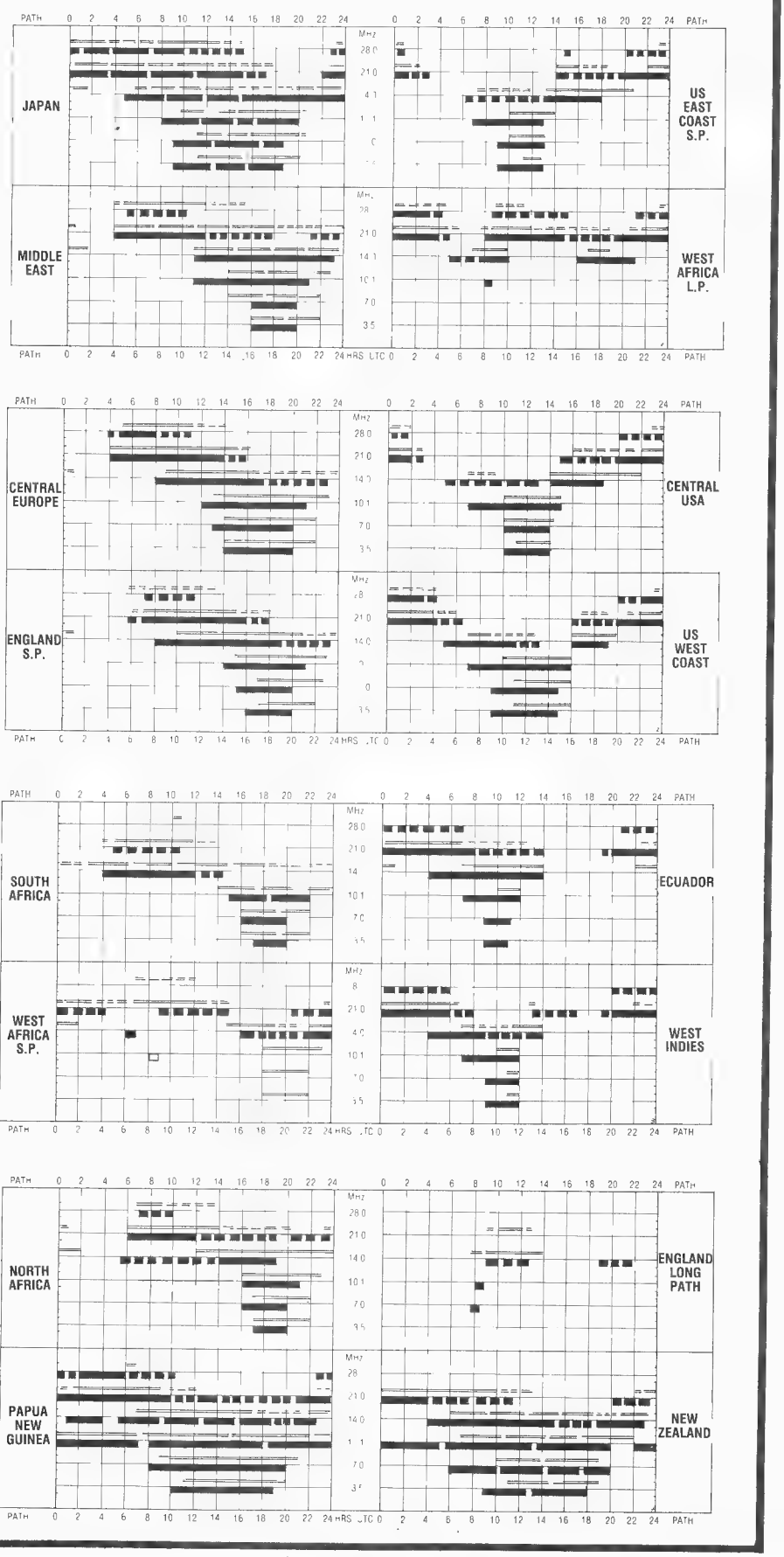
Note

John Moyle National Field Day Logs must be received by the Federal Contest Manager by the 23rd March, 1983, to qualify for any awards.

AR

IONOSPHERIC PREDICTIONS

Len Poynter
VK3BYE



W01105

THE VK3BWW FORMULA FOR DX SUCCESS!!

HIGH QUALITY AT LOW COST

BEAMS

3 EL 10 & 11m	$75.00
3 EL 15m	$83.00
3 EL 20m	$158.00
6 EL 6m	$108.00
5 EL 2m	$36.00
9 EL 2m	$59.00

DUOBANDER

3 EL 10m, 3 EL 15m **$148.00**
Prices include Gamma match

Our beams are easy to assemble and adjust. Entirely **NEW** CONCEPT — **NO** NUTS OR BOLTS.

Spare parts, elements, booms and gamma matches available.
Plus Freight

For further information
PLEASE RING (03) 366 7042
VK3BWW
WERNER & G. WULF
92 LEONARD AVENUE
ST. ALBANS, VICTORIA 3021

A Call to all holders of a

NOVICE LICENCE

Now you have joined the ranks of Amateur Radio, why not extend your activities?

THE WIRELESS INSTITUTE OF AUSTRALIA
(N.S.W. DIVISION)

conducts a Bridging Correspondence Course for the A0CP and LA0CP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a SUCCESSFUL CONCLUSION.

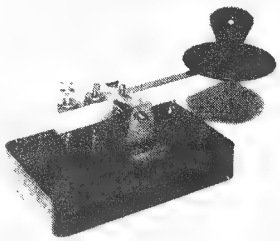
For further details write to:
THE COURSE SUPERVISOR, W.I.A.
P.O. BOX 1066,
PARRAMATTA, NSW 2150
W01108

Silent Keys

It is with deep regret we record the passing of--

HAROLD ACKLING	VK2PX
RON HARVEY	VK6VX
T. G. PHILLIPS	VK2YHD
NORMAN RICHARDSON	VK7NR
J. SIMPSON	VK5NSO
P. T. SINCLAIR	VK3VZZ
KEITH WARDLEY	VK3IS

THE KEY TO GOOD CW



There has never been a better designed Morse Code Key — SOLID, ROBUST and BEAUTIFULLY BALANCED.

MODEL 610
POST OFFICE PATTERN MORSE CODE KEY

Spring tension is adjustable to minimise wrist fatigue when transmitting for long periods and these quality Clipsal keys are beautifully balanced for fast, reliable operation.

PRICE $39 POST PAID AUSTRALIA

WILLIAM **WILLIS** & Co. Pty. Ltd.
MANUFACTURERS AND IMPORTERS
98 CANTERBURY ROAD, CANTERBURY, VIC., 3126
PHONE: (03) 836 0707 W01107

WARNING!!

Disposing of your old rig??

Please ensure it goes ONLY to someone licensed to use it on YOUR bands.

Obituaries

HAROLD D. ACKLING VK2PX
1892-1982

Many old timers will be saddened to learn of the passing of Harold, VK2PX at the grand old age of ninety years. He was born on Saint Patrick's Day 1892.

Harry, as he was known to his radio friends, was licensed in 1930, keeping his original call for fifty-two years. I well remember his original gear, all home-brew — a pair of UV202 bright emitters in a self-excited Hartley circuit, complete with slop jar HT supply. For reception an O-v-1 from wet batteries and 133 feet Zepp antenna. Harold worked an astonishing list of DX in his time including AC3YN in Tibet and he used to show me the treasured QSL for this contact.

At the outbreak of World War Two he volunteered for the army signals and left Australia in a large contingent on the Queen Mary. He saw service in Syria and was in Crete when the island was invaded by German paratroops. He escaped to Alexandria.

For many years prior to the war he was Treasurer of the original Lakemba Radio Club in the early thirties. There are unfortunately few of the old members left who will with some nostalgia remember Harry collecting the sixpences for the club funds. Harry has joined the long list of silent keys, 2JT, 2HW, 2CY, 2FY, 2EV and many others of the old club members. Right up to the time of his death in the Repatriation Hospital Concord on 22 November, 1982, Harold was active on our old timers 2 metre net. He is sadly missed.

He leaves behind a son and daughter and a host of friends.

Gilbert Pollock
VK2FU
AR

PETER THOMAS SINCLAIR VK3VZZ

Peter Sinclair VK3VZZ died suddenly at Lakes Entrance, Vic. on the 18th of December 1982, of a heart attack. He was 42 years of age. Apart from being my best friend, he was, I believe, what amateur radio is all about.

Although relatively new to the hobby, Peter was the first to offer assistance to others, and was always there when the antenna needed to come down, foundations needed digging, or simply for just a yarn.

In his job as a sales representative, he was held in high esteem by all who came in contact with him from Sale to the New South Wales border. Peter and I studied every Wednesday night for a pass at that elusive full call theory, and I'm sure that Peter would have made it this February.

He liked to "rag chew" and to renew friendships with DX stations whenever possible.

Peter was a gentleman and this was apparent in everything he did, especially his amateur operation. Amateur radio will suffer from the loss of Peter Sinclair, and his passing has left a large space in my life. To his wife Doris, and his children Shane and Joanne, I extend our deepest sympathy. I am proud and honoured to have known him. 73 mate.

Peter VK3VPC
AR

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

*** Please insert STD code with phone numbers when you advertise.**

- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

TRADE HAMADS

Conditions for commercial advertising are as follows: The rate is $15 for 4 lines, plus $2 per line (or part thereof) minimum charge $15 pre-payable. Copy is required by the first day of the month preceding publication.

Amidon Ferromagnetic Cores: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE to: R. J. & U. S. Imports, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken St, Oakley, 2223). BUSINESS CLOSED DURING FEBRUARY.

CB Radios $69; walkie talkies, short wave radios, military, outback, business, amateur, marine, repairs, RTTY Siemens 100A printer $120; base mic., $45; ultrasonic alarm, $35; all ham bands on a single 6 ft. whip, 1.8 to 30 MHz, for base or mobile, $300; aerials, installation, demonstrations, 40 ch. CB conversions, accessories, new rigs weekly. Bridge Disposals, 12 Old Town Plaza, opp. Bankstown Railway Station, NSW. Mail order service and all enquiries to 2 Griffith Avenue, Roseville 2069, or phone Sam VK2BVS, 7 p.m. to 9 p.m. only, on (02) 407 1066.

FOR SALE — ACT

ICOM 551 Tcvr 6 m, all mode 10W with FM board $550. Icom 260A 2 m all mode 10W $300. Glen VK1KAA QTHR. Ph: (062) 54 8002.

FOR SALE — NSW

AR MAGAZINES — 45 Issues of AR between 1972 and 1979. $20 plus postage. C MacKinnon, 16 Mills Rd, Glenhaven 2154.

CALLBOOKS 1981 USA $8, 1982 foreign $10, morse key HK708 $10. Volumes 49 and 50 of AR, 24 mags in all $10. VK2DET Blackheath NSW Ph: (047) 87 7003.

COAXIAL RELAYS 1.1 SWR at 450 MHz, 50 ohm, 50W, 12V DC coil, unused, sml Qty $5 ea. Tektronix 564 storage CRO with 2B67 time base and 2A63 vertical plug-in, books and spare valves $450 VK2ZIG QTHR PH: (02) 638 4864.

COLLINS KWM2, round emblem $500. Collins S line 32S1 and 75 S3B immac $850. Robot trimode keyboard and monitor $850. Hygain 10/15 Duobander still in carton $200. Drake TR4B Tcvr $250. Drake TR4C both perfect. $295. Cliff Coverdale VK2VK. Ph: (065) 52 4477 BH (065) 59 1508 (AH).

DECEASED ESTATE: Disposal of amateur equipment of the late VK2BB — Eddie Bailey of Murwillumbah. Offers are requested for the following equipment. The best offer will be accepted and the offerer will be notified. Offers to be in hand by the end of February 1983. FT 902D Tcvr new in orig case, Kenwood TS520S Tcvr new in orig case, FDK Multi 7 2 m FM Tcvr GC, Kenwood AT230 ant tuner new in orig case, FRG7 Rx GC, BC348 Rx, Oscerblock SWR200 power Meter new in orig case, Kyoritsu K109 SWR Meter GC, Tandy 21522 SWR power meter new cond, Ringo Ranger 2 m ant new cond, 30 feet steel tower & 2 m beam GC, Dick Smith Freq meter GC, Webster Bandspanner Mobile Ant GC, 3 inch Oscilloscope T03, Bendix BC221 Freq Meter, Leader Sig Gen LSG10 in GC, Micronta Transistor Tester model 22024 GC, Leader Transistor Dip Meter LDM813 GC, Scope iron and transformer GC, large 250 Voltac Volt Meter GC offers to: Ian K. Dunlop VK2AVS 24 Countryside Drive, Murwillumbah, NSW 2484 Ph: (066) 72 2462.

FT-227 R MEMORIZER as new. Plus 13.5 VDC/5 amp. Regulated power supply. Offers? Nev VK2YMN QTHR Ph: (049) 61 1513.

FT620 6 METRE SSB Tcvr, with crystal on 52.1 MHZ but no Mic, $200. Also IC202 2 m SSB Tcvr less Mic and carry strap, $100. Contact Jeff VK2BYY QTHR Ph: (02) 649 9829 AH.

HY-GAIN TH5DXX 5 El tri-band yagi with HY-gain BN-86 balun, 100 foot RG8 cable, EC with instructions $295 new Mics in box — Shure 404C $40 Icom SM5 for IC 720, 730, 740, $35 new; Drake W4 wattmeter $40 new B&W 5 position coax switch $15 new Heath phone patch $50 PO Box 505, Bondi Junction, 2022, NSW Ph: (02) 36 2981.

IC202 2M SSB Tcvr and IC20L linear amp and IC3PS power supply $200 VK2YMW QTHR Ph: (02) 48 2818 AH.

KENWOOD AT 200 GC $135, Kenwood AT 230 as new $180, Yaesu FT 207R, 2 spare Ni-Cd packs, case, YM47 Mic, 3 W-1 W $250, Kenwood TS 180S DFC ED $950, AT 180 $1500 VFO 180 $150, SP 180 $70, MC 50 $40, PS 30 $150 or $1400 the lot Ph: (02) 588 4414.

KENWOOD HF TS900 Tcvr c/w PS and handbook A1 cond. Any trial $430 ONO John VK2ANX QTHR Ph: (02) 638 4191.

KENWOOD TR7400A 2 m Tcvr 25 W 800 Ch perfect operating cond. Covers never been off, Mic Manual used only as base station $295. Max VK2GE Ph: (043) 92 4900.

KENWOOD TS130S with 1.8 kHz SSB and 500Hz CW. Filters plus PS30 pwr Supply, VFO 120, MC50 Mic and AT130 tuner. Radio and VFO have had approx one months use other items new unmarked and in cartons $950. 2 m Linear Jumbo HP-50V new $100. Diawa CN-510 SWR and pwr meter 1.8-60 MHz 200 W new $55 Alan VK2KPQ Ph: (02) 524 2488.

MC50 MICROPHONE $40. YK88C 500Hz crystal filter $35. W6TOG Rx upgrade kit $40. Workshop manual $8. All above suit TS 120/130. 455 kHz crystal filter, 5 kHz, suits FRG7 etc $20. CPI linear 80 m-10 m, 20 W in-200 W out, with Rx preamp $18. Daiwa CNW 217 tuner/SWR meter $100. 10 m Rx preamp, RF switched $25. Model 110 SWR/power meter $18. Microwave precision test oscillator, G229/AP65371A covering 9.550 to 9.900 GHz, can be converted to 10 GHz $60. Valve type, variable, regulated power supply, metered 0-600 VDC, 0-250 mA $60. Electronics Australia 1958 to 1976 $8 per year. CB Action No 1 to 50 $25. Number of other magazines, send SAE for list. All above plus freight. C. MacKinnon 16 Mills Rd Glenhaven 2154. Ph: (02) 634 6259 AH.

SHURE 444 Mic $50, Daiwa ant tuner $60, KLM 2 m amp 50 W out, CW, FM and SSB $60, Henry 2 m amp, 80 W out continuous duty, $100. VK2BHF, QTHR. Ph: (02) 981 4762.

YAESU FT75B HF Tcvr full set xtals AC and DC PS $300. Icom 202 2 m SSB Tcvr and Oscar Xtal $160. Kenwood TR-2200G 2 m FM Tcvr, Simplex 40 and 50 Repeater 2 and 8 $100. Hy-Gain TH6-DXX 10-15-20 m beam $290. Dream 6800 computer and JR expansion board 5K of RAM, 12 mths news letters and construction articles, in working condition $160. VK2KKL QTHR. Ph: (080) 5285.

YAESU FC-107 ATU — All band coverage (including WARC), separate meters SWR/Power Output to 250W RF, switchable 4 antennas (3 coax feed 1 random wire), EC, manual, original carton — $120. VK2AFR Ph: (02) 635 7179.

FOR SALE — VIC

COMMUNICATIONS RECEIVER, Kenwood R820, the best amateur receiver ever made by Kenwood. This unit has been advertised previously without one enquiry! Why? Doesn't anybody know that it is a receiver with superb features that out performs even the latest units? That it cost over $1100, is as new in carton, and MUST be sold? What offers over $400? VK3ARZ, QTHR, Ph: (03) 584 9512.

COMPUTER PRINTER Tono dot matrix bi-directional in as new condition $650 ONO G. Scott Ph: (03) 890 4645.

DECEASED ESTATE — Kenwood TS520 C/W AC/DC cables and spares including 6146B's (has intermittent AGC fault) $460. Dentron MT 2000A (ATU) $200. Beam TH3-Mk2 (Thunderbird) C/W balun and 30ft tubular steel mast. $150. University multimeter MVA-100-CN (as new) $40. VK3NV QTHR. Ph: (03) 578 6866.

DUO BAND BEAM 15 m and 10 m 3 el on each, mono band with SEP gamma matches. W Wulf design EC $90. VK3PEN. Ph: (03) 20 2501 BH (03) 596 5180 AH.

FT7 HF 25W Tcvr, excellent performer, extras incl RF attenuator, full 28-29 MHz coverage, Fox Tango 2.1 kHz filter, complete with mic, mobile mount, handbook, etc. $355 ONO. FT7 very good condition, some extras, $325 ONO. VK3ARZ QTHR. Ph: (03) 584 9512.

IC 201 Tcvr $325, Robot 400 $400, SSTV keyboard $75, FSTV-SSTV unit $100, SSTV Rx P29 screen $50, Creed 75 $85, Teletype tape distributer $60, Teleprinter tester $20. Prices ONO. VK3BOB. QTHR. Ph: 578 7441.

IC22S in mint cond - no mods. Comp with all cables, packing, book etc. Has standard Mic plus Vicom noise cancelling Mic and home brew vinyl carry bag. Sell lot $200. Geoff — VK3DGV QTHR. Ph: (03) 560 3773.

ICOM IC22S brand new, the best 2 m rig ever made, mobile antenna to go with it. Ready to operate $270, ring George VK3CGK ex 3XGK QTHR after 5 PM. Ph: (03) 687 6778.

KENWOOD TS 8400 Tcvr 430-440 MHz, FM 10 or 1 W output, 5 memories, 2 VFOs, up-down scan Mic. Near new in carton, $325 ONO, VK3UJ QTHR. Ph: (03) 874 5632.

NALLY TOWER — 50ft. $450, TV502 transverter $150, Ext VFO for TS520 $120, SB610 monitorscope $150, Creed 7B teleprinter $45 ONO, ST5 modulator plus RY generator, plus ETI demodulator (not connected) in PSU $75, Ham II rotator and cable $75, CDE medium duty rotator $50, AS33 triband beam antenna $75, telegraph distortion set TDMS5BV $50 VK3AYP QTHR. Ph: (053) 97 5201.

PHOTO MULTIPLIER TUBES: 2 x Type TFS930S unused $12.50 each ONO postage paid. VK3AH QTHR.

RAAF TEST-SET type TS16(Q)APN $35 and AWA SSG Signal generator type 1A 95104 with built-in power supply $40. Yaesu FT101E 240 V AC/12 V DC all cords, mic, manual, original packing and recently checked OK $540 Ken VK3KGX. Ph: (03) 658 3869 or 528 4229 AH.

RTTY EQUIPMENT: ST6 (ANARTS) demodulator $40; twin "T" generator (ANARTS) modulator $8; Model 15 teletype printer with loop power supply $45 including 240 V to 110 V transformer. 2 Friden Flexowriter Printers $75. All above in good working condition. No further use. Max Wood VK3AFF QTHR. Ph: (060) 72 5217.

SIDEBAND CB converted to 10 m has a vernier fitted. Is a base station and only used a few times. $150 ONO or will exchange for a 2 m hand held, DS Transverta 11 m to 80 m only used a few times $110 ONO. VK3DIO Box 1528 Mildura.

STEPPING MOTORS. American slo-syn. M092-FC08, 1.8° step angle 3 V 4A (3) new in packs. $100 each or near offer. Ph: (052) 61 3144.

WIA CORRESPONENCE COURSE — Novice to AOCP bridging course. Change of student approved by Supervisor. Price $30, cost $70. Lesley VK3PZA Ph: (03) 509 0739 BH.

YEASU FL2100Z Linear amp. New still in box. 80 m to 10 m incl new bands $540. Ph: (03) 850 2752.

YAESU FT101. Tcvr, FV101 ext VFO and SP101P land liner complete with inst manuals Ph: (03) 469 3272.

YAESU FT107M/DMS TCVR. reg AC supply, AM filter, scan Mic, maint manual as new, in orig carton, $780 or reasonable offer considered. Ray VK3RF. Ph: (03) 878 5305.

YAESU FT7, excellent order, 80 thru 10 metres, xtals for 28.100 to 28.600, 10B, 10C, manual, original carton, $400, Home brew Linear to suit uses 3x6DQ5, 2 spare valves, 100w+, $130. VK3PS Ph: (03) 879 2191 (AH).

YAESU FT7 with power supply. Perfect order $375 VK3AWB QTHR Ph: (03) 478 9265.

FOR SALE — QLD

KENWOOD AT200 antenna tuner $140 as new in orig carton. John VK4SZ QTHR. Ph: (070) 61 3286.

PHILIPS FM770 High band link Tcvrs (two avail). Ideal for 2 m repeaters Ex-Telecom single Ch radiotelephone links. Manual available. $75 each plus postage. VK4ZDC QTHR. Ph: (07) 399 2114 after 5 PM.

SWAN 350 CX complete AC power supply and desk mic. Suit Novice or enthusiastic fiddler. $125. Bill VK4WO QTHR. Ph: (07) 59 8808.

YAESU FT-107 DMS. AC power supply, FC-107 antenna tuner, manuals, all in cartons, EC $950. Noel Ph: (074) 22 2533 (work), (074) 22 1959 (home).

FOR SALE — SA

VALVES: Tx or linear 4-65A QE3-300; 2X807; 2X866A; 4CX250B new; 4X150A (7034); 4E27 (8001) 829B and socket; 815; 1 set valves for KW2000 new; 2 sets for KW2000 used but OK 150 valves octal and various AM Tx 160 m to6 829B in final; old Radios and mags VK5LC QTHR.

VERTICAL ANTENNA — D4305, five band (3.5, 7, 14, 21, 28 MHz) cost $100 — will accept $65 ONO. Bob VK5NWV QTHR. Ph: (08) 384 3471.

YAESU FT-7 Tcvr. Power supply, 5 El 10/15 m duo band Yagi, 25 ft. Rotatable mast, 10/15 m mobile ant, C/W Yaesu gutter mount and 2 m stub, all in as new cond. $650 ONO. Ph: (08) 270 3356.

YAESU FT200. EC. New tubes, recently realigned incl Power supply, desk mic, spare tubes $300, Trio 3" CRO $70, Heathkit freq counter 30 MHz $50, Trio power meter/SWR $60, Arlec digi-multimeter $30, Kyoritsu SWR meter $20, Chirnside 33 triband and balun $150, Daiwa rotator with control and cables $180, Hills 33 ft. wind-up, guyed lattice tower $200. All above equip in EC. VK5QX QTHR or Ph: (08) 259 61418 BH.

'Old amateurs never die, they just drift off frequency.'

Jonathan Marshall SWL

AR

FOR SALE — WA

HY-GAIN 2-EL QUAD TRIBAND. Needs repair. Will consider any offer. Alan VK6MT QTHR. Ph: (09) 447 7941.

YAESU 101 E modified to suit novice license. GC one year's operation. Can be readily restored to full power. With manual and cartons $525. Contact Ross VK6DA. Ph: (09) 444 2909.

FOR SALE — TAS

DECEASED from the estate of the late Norman Richardson VK7NR. Yaesu 101E comp with match speak and dynamic mic type YD-844 $500, KW Electronics Ltd Supermatch KW107 $100, Kenwood R1000 Rx as new $400, Radiophone 2 m Tcvr C/W power supply type MTR25 $100, Voltomyts VTVM $50, Ohmatsu Electric Ltd GDO 2-200 MHz model LDM-810 $20, Daiwa rotator DR-7500X comp with top stay bearing $100, set of driver and PA boards STC 151 comp and ready to go. ¼ W in and 25 W out $30, Nicad batt pack and charger 12 V $20, 5 band trap dipole $15, home brew impedance bridge $5, PMG type morse key $10, Kyokuto VHF FM Tcvr $200. All enquiries to: Mr B Yeoman VK7ZBY 104 Hardwicke St Launceston 7250 Tas. Ph: 91 8288 ex 21 BH, 44 1466 AH.

FOR SALE — NT

160 m-6 m TS520S/TV506. New 6146-B's. DSE trap-vertical/coax $695 or swap for mobile HF Tcvr. Ed DeYoung, VK8XX, Box 3367, Alice Springs, NT 5750. Ph: (089) 52 6536 AH.

WANTED — NSW

CIRCUIT, or copy required for model OM3 Heathkit 5" oscilloscope. Willing to pay costs for same. VK2DLM QTHR.

HF SSB/CW Tcvr by genuine cash buyer, fair price paid, OK mods; not necessarily working; all considered! PO Box 505, Bondi Junction, 2022 NSW or Ph: (02) 36 2981.

INFORMATION PLEASE — which radio magazine, CQ, QST, 73 etc published a ham conversion for National 8 Tran two band Rx model no T46 some years ago. VK2ABV Randwick 2031.

TEN-TEC type 247 ATU VK2KSD QTHR.

VALVE MANUALS — Bernards International Radio Tube Encyclopedia — RCA transmitting tubes, valves 811A's and ceramic sockets — counter dial for rotary inductor 50 turns or greater, VK2KEK. Box 131 Cooranbong 2265. Ph: (049) 77 2178.

WANTED — VIC

A BUY OR SWAP — short length Cathode Ray Tube (DG7 type) 2¾" diam or similar VK3DYZ 28 Foster Ave Glenhuntly.

AIRCRAFT MORSE KEY World War 2, RAAF pay cash or exchange good vintage Eddystone side swiper. VK3GG QTHR Ph: (03) 337 8094.

PMG MORSE TELEGRAPH SOUNDER. VK3DEK QTHR.

SPEECH PROCESSOR: RF type Toyomura Ken KP12A (IC and Xtal filter type) in GC. Details please to VK3AH QTHR.

VALVES: required to complete construction of Acitron 400 SSB rig. YL 1060, one or more. VK3KGR Ph: 429 2139 BH, 25 8255 AH.

WANTED — QLD

COMMUNICATION RECEIVER, MF-HF, 150 kHz to 30 MHz preferred. Old-timer would like to have an old friend, AR7, AR88, Super-pro, Eddystone, Marconi or similar, for general coverage. Age no barrier but should be complete even if not in working order. John VK4NRQ QTHR.

DRAKE MS4 SPEAKER, L4B linear, 500 Hz CW filter. Details to John VK4SZ. PO Box 26, Innisfal 4860. Ph: (070) 61 3286.

IC551D 6 METRE Tcvr GC, complete, please contact VK4GM QTHR. Ph: (079) 23815.

RCA TRANSMITTING TUBE MANUAL in good condition, also complete VHF 2 m amp using 4CX-250-B, 8877, or similar valves. Prefer commercial or well built home brew. VK4ZJL QTHR. Ph: (07) 44 1749.

VALVES AND SOCKETS: urgently require sockets for 6CW4 Nuvistor valves, 9 pin novar sockets for 6LQ6's also valves 6BA7, 6AK6, 6BE6, 6BJ6, 6BZ7, 6EW6, 6GH8, 6GK6, 6GX6, 12AU6, 12BZ6, 13DE7. VK4EF QTHR. Ph: (07) 38 1803.

WANTED — WA

REMOTE VFO to suit Kenwood TS520S VK6KG QTHR. Ph: (095) 31 8618 or (095) 31 1946 AH.

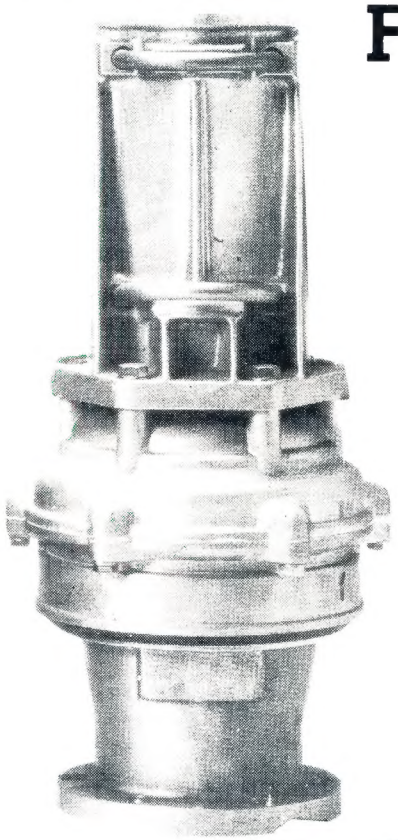
WANTED — TAS

CAVITY FILTER for VK7RNW (2 m), or info on obtaining or making. Contact VK7KTV, VK7ZAP QTHR or Phone VK7SE (004) 37 5240.

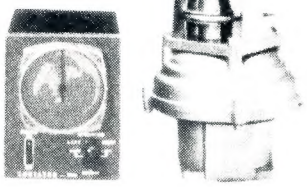
ADVERTISERS' INDEX

Andrews Communications Systems 57
Audio Telex Communications Pty Ltd ..... IFC
Bail Electronic Services ..... IBC
Bright Star Crystals 56
Chirnside Electronics Pty Ltd 53
Dick Smith 1
Electromark Pty Ltd 4
Emtronics 2
GFS Electronic Imports 21
Ian J. Truscott Electronics 49
ICOM Australia Pty Ltd ..... 32, 33, IBC
Knoxtronics Electronic Services 5
Magpubs 7, 29
Novice Course 3
Rialto International 4
RF Industries 5
Trio Kenwood (Australia) Pty Ltd 10
Vicom 3, 5, 7, 9
VK2 WIA Novice Licence 62
Voller Transformers Pty Ltd 59
Werner & G. Wulf 62
William Willis & Co Pty Ltd 62

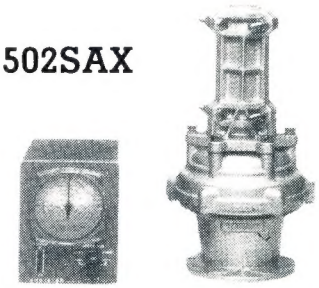
EMOTATOR ROTATORS FROM BAIL



103SAX



502SAX



SAX MODELS HAVE GREAT CIRCLE MAP CENTRED ON S.E. AUSTRALIA

1102MXX
1103MXX

Model	A M²	GD² Kg M	Braking Torque Kg Cm	Rotation Torque Kg Cm	Vertical Load Kg
103SAX	0.7	75	1500	450	150
502SAX	1.5	130	4000	600	400
1102MXX MSAX	2.5	300	10 000	800	400
1103MXX MSAX	2.5	700	10 000	1000	400

A: Allowable Antenna wind area
GD²: Allowable Flywheel effect

Controller for
1102MSAX, 1103MSAX

CONTACT THE AUSTRALIAN AGENTS FOR EMOTATORS AND ALL ROTATOR ACCESSORIES . . .

BAIL ELECTRONIC SERVICES
38 FAITHFUL STREET, WANGARATTA 3677
Telephone: (057) 21 6260 — Telex: 56880

Stan Roberts
VK3BSR

ICOM

ICOM BRINGS THE WORLD TO AUSTRALIA

Now ICOM is directly represented in Australia with the establishment of it's own company, ICOM AUSTRALIA Pty. Ltd.
The Australian Amateur has known ICOM for many years as the leader in 2 meter and 6 meter transceivers, more recently for the State of The Art multi-band units such as the IC-740 with full WARC facilities.
You will soon know ICOM AUSTRALIA for the best in Australian service.
ICOM AUSTRALIA Pty. Ltd. and it's authorized dealers can now offer you factory backed technical and service facilities here in Australia.
All dealers and prospective dealers, please feel free to call on us soon and talk with The Team that understands Amateur Radio.

The IC-740 contains all the most asked for features, in the most advanced solidstate HF Base station and can be coupled with the now popular accessories, **IC-2KL** linear amplifier and **IC**-AT500 fully automated antenna coupler to complete the **ICOM** system.

Discover a new deal with ICOM AUSTRALIA

ICOM AUSTRALIA PTY. LTD.

7 Duke Street, Windsor, Vic., 3181
Telephone 529 7582, 51 2284